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المراجعة رقم (1)

الترم الاول



Revision on Concept 1.1

Adaptation and Survival

1 Definitions

Adaptation	They are the characteristics that help living organisms survive and reproduce in their ecosystem.
Ecosystem	It is an area in which living organisms and nonliving things interact with each other.
Habitat	It is the environment where a living organism lives.
Structural adaptation	It is a change in a living organism's body structure to help it survive.
Behavioral adaptation	It is a change in a living organism's behavior or acts to help it survive.
Camouflage	It is a type of adaptation in which an animal blends in with the surrounding environment to hide from predators or sneak up on prey.
Countershading	It is a camouflage strategy in which the bull shark has a dark back and a white belly.
Predator	It is an animal that hunts (eats) another animal.
Prey	It is an animal that is hunted (eaten) by another animal.
Penguin	It is a non-flying bird that has a thick fat layer and dense feathers on its body.
Camel	It is an animal that stores fat in its hump to adapt to the desert environment.
Caracal	It is a cat with tan-colored fur that lives in the desert.
Polar bear	It is a bear that has white, thick fur and lives in Arctic region.
Black (brown) bear	It is a bear that has dark fur and lives in forests.

Fennec fox	It is a fox that has sandy-colored fur and lives in deserts.
Arctic fox	It is a fox that has white fur in winter and brown fur in summer.
Bull shark	It is an organism that uses a countershading strategy to hunt.
Agama lizard	It is a lizard with colorful scales that adapted to live in the desert.
Panther chameleon	It is a lizard that can change the color of its scales and adapted to live in tropical rainforests.
Amazon rainforest	It is a rainforest that is characterized by its strong wind and soggy soil.
Savannah	It is a grassland habitat that has drought conditions.
Kapok tree	It is an umbrella-shaped tree that grows in Amazon rainforests.
Acacia tree	It is an umbrella-shaped tree that grows in savannah grasslands.
Taproots	They are very long roots that grow directly downward in acacia trees.
Buttress roots	They are wide and large roots that fix the kapok tree firmly to the soggy soil.
Pine tree	It is a tree that adapted to survive in snow and has a triangular shape.
Water lily	It is a tree that has wide leaves floating on water to absorb sunlight.
Mangrove tree	It is a tree that grows in salt water and has a strong, long root to resist water waves.
System	It is a group of organs that work together to perform a job (function).
Digestion	It is the process of breaking down food into smaller pieces to provide the body with nutrients.

Digestive system	It is the system that breaks down food into tiny pieces so the body cells can use them for energy.
Respiratory system	It is the system responsible for breathing (respiration).
Respiration	It is the process of pulling the air in the body and pushing the air out of the body.
Inhalation	It is the process of pulling the air in the body.
Exhalation	It is the process of pushing the air out of the body.
Oxygen	It is the gas needed for respiration for all living organisms.
Carbon dioxide	It is the gas expelled out of the body during respiration.
Air pollution	It is a type of pollution that makes it hard for human to breathe.
Water pollution	It is a type of pollution that makes it hard for human to find clean drinking water.
Soil pollution	It is a type of pollution that makes the crops can't grow.
Amphibians	They are living organisms that can live on land or in water.
Endangered species	They are the species that a great loss in the number of their members.
Extinction	It is the continuous decrease in the number of individuals of an organism until the death of all its members.

2 Importance

Mouth	It is the organ where the digestion of food starts.
Teeth	They crush (break) the food during chewing.
Tongue	It mixes the crushed food with saliva.
Saliva	It is a liquid substance in the mouth that moistens food.

Pharynx	- It is a common passage for both food and air. - It is an organ that pushes food into the esophagus. - It is an organ that pushes air into the trachea.
Esophagus	It is a long, muscular tube that moves food to the stomach.
Stomach	It is a muscular organ that mixes the food with acidic and digestive juices (enzymes) until the food becomes a soupy liquid.
Liver and pancreas	They pour juices into the small intestine that help break down food into nutrients.
Small intestine	The nutrients are absorbed through the walls of the small intestine to enter into the tiny blood vessels.
Large intestine	It is an organ that absorbs water from the undigested food.
Anus	The solid waste (stool) leaves the body through it.
Nose	It is the first organ of the respiratory system through which air enters the body.
Trachea	It is a tube that allows air to pass to the two lungs and it is divided into two bronchi at its end.
Two bronchi	They allow air to enter the two lungs and they are divided into smaller tubes that look like trees' branches called bronchioles.
Two lungs	They have two balloon shapes, and they are responsible for gas exchange through a structure called the alveoli.
Alveoli	They are tiny air sacs surrounded by blood vessels where oxygen is transferred through them to the blood stream.
Diaphragm	It is a large muscle that has an important role during inhalation and exhalation.
Gills	They allow fish to extract oxygen from water.
Skin	It is a structure that allows amphibians to extract oxygen from water.

3 Give a reason for:

- ① A camel stores fat in its hump.
 - To adapt to the dry and hot desert environment.
- ② The starred agama lizard is always looking for shaded areas in the desert.
 - To keep its body cool during hot, sunny days.
- ③  The penguin's body has a thick layer of fat and dense feathers.
 - To keep its body warm in the extreme cold weather.
- ④  The blood vessels in the penguin's feet weave around each other.
 - To protect its toes from freezing as the warm blood vessels heat up the cold blood vessels.
- ⑤ Desert lizards have colorful scales.
 - To hide among the colorful rocks in the desert.
- ⑥ A fennec fox has tan-colored fur.
 - To hide and blend in with the desert environment.
- ⑦  A polar bear has white fur.
 - To hide and blend in with the snow.
- ⑧  A polar bear has thick fur.
 - To keep its body warm in the cold weather.
- ⑨ Brown bears and black bears have dark fur.
 - To hide among the trees in the forest.
- ⑩  Some animals have the ability to use camouflage strategy.
 - To hide from their predators or sneak up on their prey.
- ⑪  An Arctic fox has short ears and legs.
 - To stay warm in the cold weather.
- ⑫  A fennec fox has extra-large ears.
 - To lose heat and cool its body.
- ⑬  A fennec fox pants like a dog.
 - To cool its body.
- ⑭ An Arctic fox has thick fur.
 - To keep its body warm in extreme cold weather.

- ⑮  The fur of the Arctic fox is white in winter and brown in summer.
- To sneak up on its prey in any season.
- ⑯ Fennec foxes hide in burrows during the day.
- To stay cool during hot, sunny days in the desert.
- ⑰ Arctic foxes hide in burrows at night.
- To stay warm during cold nights in tundra.
- ⑱ Both fennec foxes and Arctic foxes eat different kinds of food.
- Because it is hard to find food in the hot desert or the tundra desert.
- ⑲  Bull sharks have less competition for finding food in fresh water.
- Because other types of sharks live in salt water only.
- ⑳ Bull sharks use a camouflage strategy called countershading in hunting.
- To sneak up on their prey during hunting.
- ㉑ The eyes of a panther chameleon move independently (in different directions).
- Because the panther chameleon uses one eye to find food and the other eye to avoid danger.
- ㉒  A panther chameleon has V-shaped feet and a tail like a hand.
- To hold the branches of trees tightly.
- ㉓  Acacia trees have very long roots that grow downward (taproots).
- To get water from the deep soil.
- ㉔ The branches of acacia trees gather on the top of its trunk.
- To prevent animals from reaching their leaves.
- ㉕ Acacia trees have sharp spines around their leaves.
- To prevent animals from eating their leaves.
- ㉖ Acacia trees use wind to communicate with other trees.
- To send smelly messages to nearby acacia trees to produce poison if there is danger nearby.
- ㉗  A kapok tree has large, wide roots that grow up around the trunk (buttress roots).
- To fix the tree firmly in the soggy soil.

- ②8 A kapok tree has hand-shaped leaves.
- To allow wind to move gently through its leaves without cutting them.
- ②9 A pine tree has a triangular shape and short branches.
- To allow the snow to slide on it without breaking its branches.
- ③0  Water lilies have wide floating leaves.
- To absorb a large amount of sunlight.
- ③1 Mangrove trees have long and strong roots.
- To resist the water waves.
- ③2 Palm trees have thick roots and small leaves.
- To resist the strong wind.
- ③3 Barbary figs have sharp spines.
- To prevent animals from eating their fruits and leaves.
- ③4 The human body is made up of different systems.
- To perform different functions and to keep living organisms alive.
- ③5 The human body needs energy.
- To survive, grow, and carry out vital processes.
- ③6 The teeth play an important role in digestion.
- Because teeth break down food into smaller pieces.
- ③7 The tongue plays an important role in digestion.
- Because the tongue mixes the food with saliva.
- ③8 Saliva plays an important role in swallowing food.
- Because saliva moistens the food to facilitate its swallowing.
- ③9 The juices of the liver and pancreas are important.
- To help in breaking down food into nutrients.
- ④0 The small intestine is an important organ in the digestive system.
- Because the nutrients are absorbed through the walls of the small intestine to enter the blood.
- ④1 The large intestine is an important organ in the digestive system.
- Because it absorbs water from the undigested food and turns it into solid waste.
- ④2 The anus is an important organ in the digestive system.
- Because solid waste leaves the body through it.

- 43  The inhaled air differs from the exhaled air.
- Because the inhaled air is rich in oxygen gas, while the exhaled air is rich in carbon dioxide gas.
- 44 The diaphragm plays an important role in the respiration process.
- Because during inhalation, the diaphragm contracts and moves downward, while during exhalation, the diaphragm relaxes and moves upward.
- 45  Gills are unique structural adaptation in fish.
- Because they enable fish to absorb oxygen from water.
- 46 Car and factory exhausts have bad effects on the environment.
- Because they produce smog, which causes damage to the lungs, asthma, and breathing problems.
- 47  Frogs can live in water.
- Because their skin can absorb oxygen gas from the water.
- 48 The dry season is very harmful for amphibians.
- Because their skin must be wet all the time to extract oxygen gas from water.
- 49 Pollution of air and water can affect the survival of amphibians.
- Because they breathe oxygen gas from water and air, so they are sensitive for any pollution.
- 50 Scientists must study how amphibians interact with their environments.
- To help them survive and protect them from extinction.

4 What happens if:

- 1 The penguin has no feathers or a fat layer on its body?
- It cannot adapt to the cold weather and it will die.
- 2 The warm blood vessels and cold blood vessels in the penguins' feet do not weave around each other?
- The penguins' toes will freeze.
- 3 The polar bear has thin fur instead of thick fur?
- It cannot adapt to the cold weather and it will die.

- ④  **The polar bear has dark fur instead of white fur?**
 - It will not be able to hide from its prey, so it can't get food.
- ⑤ **The Arctic fox has a white coat during all seasons of the year?**
 - It cannot hide from its prey in summer, so it can't get food.
- ⑥  **A fennec fox has short ears?**
 - It will not be able to cool its body.
- ⑦  **An Arctic fox has long ears?**
 - It will not be able to warm its body.
- ⑧ **The sense of hearing becomes weak in foxes?**
 - They cannot hunt their prey.
- ⑨  **A bull shark moves from an area of salt water to an area of fresh water?**
 - It will find less competition in finding food.
- ⑩ **A panther chameleon is exposed to danger?**
 - It puffs up its body with air, opens its mouth wide, and changes the color of its scales.
- ⑪  **The length of the acacia taproots is short?**
 - The roots cannot get water deep in the soil.
- ⑫  **There are no buttress roots in the kapok tree?**
 - The kapok tree cannot stay firmly in the soggy soil.
- ⑬ **A pine tree doesn't have a triangular shape?**
 - The snow will break its branches.
- ⑭ **The trunk of a kapok tree becomes very short?**
 - The kapok tree won't get the needed sunlight, so it will die.
- ⑮ **A water lily has narrow leaves instead of wide leaves?**
 - It cannot absorb a large amount of sunlight.
- ⑯ **A mangrove tree has short and weak roots?**
 - It cannot resist the water waves.
- ⑰ **A barbary fig has no spines?**
 - Animals will eat its fruits easily.

18) The small intestine doesn't exist in the human body?

- Nutrients will not be produced and the digestive system cannot perform its functions.

19) The diaphragm moves downward during inhalation?

- The chest size increases and the air rich in oxygen gas enters the lungs.

20) The diaphragm moves upward during exhalation?

- The chest size decreases and the air rich in carbon dioxide gas comes out of the lungs.

21) The exhausts from cars and factories increase in big cities?

- Smog increases, causing breathing problems, damage of lungs, asthma, and heart diseases.

22) Water pollution increases (for human and fish)?

- Humans cannot find clean water to drink, and fish will die.

23) Water pollution increases in the natural habitat of amphibians?

- The number of amphibians will decrease.

24) The skin of frogs becomes dry?

- They cannot survive and they will die.

5 Summary

Adaptations

They are the characteristics that help living organisms survive and reproduce in their **ecosystem**.

- If a living organism **adapts**, it **survives** and **reproduces**.
- If a living organism **can't adapt**, it **dies** or goes **extinct**.

Types of Adaptations:

Structural Adaptation

- It is a change in a living organism's **body structure** to help it survive.

- 1 Polar bears have white fur.
- 2 Blood vessels in a penguin's feet.
- 3 Camel stores fat in hump.

Behavioral Adaptation

- It is a change in a living organism's **behavior or acts** to help it survive.

Examples:

- 1 Bird migration
- 2 Desert lizards look for shade.

1 Adaptation in Animals:

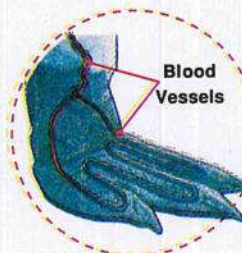
Penguin

Habitat (Antarctica)



Penguin's body:

A penguin has a **thick fat layer** and **dense feathers** on its body to keep its body warm in the cold weather.



Penguin's feet:

- 1 Blood vessels bring **cold** blood **up** from the feet to the body.
- 2 Other blood vessels bring **warm** blood **down** from the body to the feet.
- 3 The blood vessels **weave around each other**, so the warm blood vessels **heat up** the cold blood vessels and the **heat transfers** to the penguin's feet.

Camouflage

It is a type of adaptation in which an animal blends in with the surrounding environment to hide from **predators** or sneak up on its **prey**.

		Habitat	Way of Adaptation
1 Polar Bear		Arctic Regions	It has thick fur. To keep its body warm. It has white fur. To blend in with the snow to sneak up on the prey.
2 Black Bear and Brown Bear		Forests	They have dark fur. To hide among trees during hunting.
3 Caracal and Fennec Fox		Deserts	They have tan-colored fur. To hide and blend in with the desert environment.
4 Desert lizards		Deserts	They have colorful scales. To hide among the rocks in the desert.

Bull Shark

Lives in fresh and salt water



Structural Adaptation	• Its body is adapted to survive in salt water and fresh water. • It uses a camouflage strategy called "countershading", as it has a dark back and a white belly to sneak up on the prey. • It has sharp teeth to cut the prey's flesh.
Behavioral Adaptation	• It can hunt during the day and at night to surprise its prey. • It feeds on different types of food (It has a varied diet).

Note: In fresh water, a bull shark has less competition for finding food.

		1 Fennec Fox (Habitat: Desert)	2 Arctic Fox (Habitat: Tundra)
			In Winter  In Summer 
Structural Adaptation	Fur	It has tan (sandy) fur. To hide in the desert environment.	It has a thick fur coat. To stay warm. It has white fur in winter and brown fur in summer. To hide from the prey in any season.
	Ears	It has extra-large ears. To lose heat and cool its body.	It has short ears and legs. To help it stay warm.
Behavioral Adaptation		It pants like dogs. To cool its body.	
		They hide in burrows to overcome extreme climate, where: • A fennec fox stays cool in burrows on sunny days. • An Arctic fox stays warm in burrows at night. They eat different kinds of food (they have a varied diet), such as insects , fruits , plant roots and prey remains . Because it is hard to find any food in the desert.	

Panther Chameleon

Habitat: Tropical rainforests

Structural Adaptation	• It has bright-colored scales. - To blend in with the green leaves and colorful flowers. • Its eyes move in opposite directions independently. - One eye searches for food, and the other eye avoids danger. • It has V-shaped feet and a tail like a hand. - To hold the branches of trees tightly.	
Behavioral Adaptation	In danger, it scares its attacker by: - Puffing up its body with air. - Opening its mouth wide. - Changing its scales color.	

② Adaptation in Plants:

- Plants can grow **everywhere**, and they have **structural** and **behavioral** adaptations, like animals, that help them **survive** in different environments.



Some Structural Adaptations of Different Plants

Plant	Habitat	Structural Adaptation	Reason
① Water Lily	Wetland (Fresh water)	• It has wide leaves floating on the water.	• To absorb a lot of sunlight.
② Palm Tree	Desert	• It has a thick trunk and narrow leaves.	• To resist the strong wind.
③ Pine Tree	Snow	• It has a triangular shape and short branches.	• To allow the snow to slide easily over the branches without breaking them.
		• It has needles instead of leaves.	• To prevent water loss.
④ Mangrove Tree	Salt water	• It has long and strong roots.	• To resist the water waves.
⑤ Barbary Fig	Desert	• It has sharp spines and a tough outer cover.	• To prevent animals from eating its leaves and fruits.

P.O.C.	Acacia Tree	Kapok Tree
		
Habitat	Savannah (In Africa) • It is a grassland habitat. • The temperature is mild. • There is a lack of water (drought conditions).	Amazon rainforests (In Brazil) • It has soggy soil. • It is characterized by strong winds. • There is a plenty of water (it is easy to find water).
Shape	Both of them are “ umbrella-shaped trees. ”	
Structural Adaptation		
Roots	• Taproot (grows downwards) - It reaches 35 meters below the surface. To search for water deep in the soil.	• Buttress roots (grow upwards) - To fix the tree firmly in the soggy soil.
Trunk	• Its trunk stores water, just as camels store fat in their humps. • It has a very long trunk, so most animals, except giraffes, can't reach its leaves.	• The length of the tree exceeds 70 meters to reach the sunlight.
Leaves	• It has tiny leaves To hold water. • It has sharp spines To protect it.	• It has hand-shaped leaves with narrow parts. To allow the wind to move gently without tearing them.
Behavioral Adaptation		
	When a giraffe eats its leaves: • It produces poison. • It sends smelly messages to nearby trees to start producing the same poison.	It sends messages through the wind, to spread: • Its delicious-smelling flowers to attract bats. • The tree's fluffy yellow seeds.

Human Digestive System

Digestion

It is the process of breaking down food into smaller pieces to provide the body with nutrients.

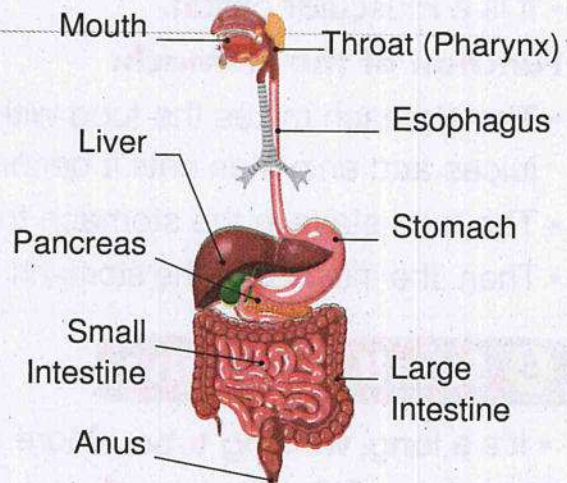
Function of the digestive system:

The digestive system breaks down the food so the body can use it to get energy.

Important Note:

- The digestive system starts with the **mouth** and ends with the **anus**.

Digestion Process Pathway:



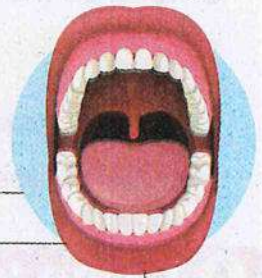
How does the digestive system work?

1 Mouth

- The digestion of food starts in the **mouth**.

Mouth contains:

- | | |
|---------------|---|
| Teeth | • They crush (break) the food during chewing. |
| Saliva | • It is a liquid substance that moistens the food.
• It breaks down the food chemically . |
| Tongue | • It mixes the crushed food with saliva. |



2 Pharynx (Throat)

- When you swallow, your throat pushes the food into the esophagus.



3 Esophagus

- It is a **long, muscular tube** that pushes food down to the stomach.

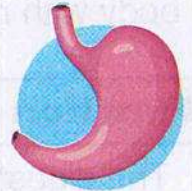


4 Stomach

- It is a **muscular organ**.

Function of the stomach:

- The stomach mixes the food with the acidic digestive juices and enzymes until it becomes a **soupy liquid**.
- The food stays in the stomach for a **few hours**.
- Then, the muscles of the stomach move the food into the **small intestine**.



5 Small Intestine

- It's a **long, winding tube**. (More than **six meters** long)

Function of the liver and pancreas:

- They pour juices into the small intestine that help break down food into **nutrients**.

Function of the small intestine:

- The nutrients are absorbed through the walls of the small intestine to enter into the tiny blood vessels.

Then:

- The **digested food (nutrients)** is carried by the **blood** to all body parts.
- The **undigested food** flows into the **large intestine**.



6 Large Intestine

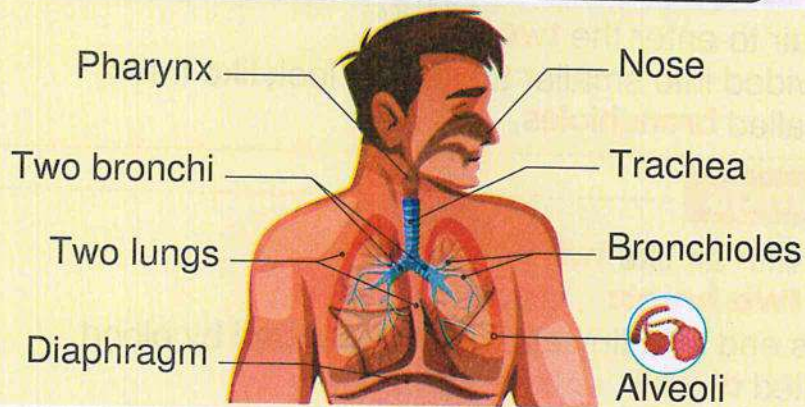
- It's a **wide tube** that starts at the end of the small intestine and ends with the anus.

Function of the large intestine:

- It absorbs **water** from the undigested food so it becomes solid waste.
- Solid waste leaves the body through the **anus**.



Human Respiratory System



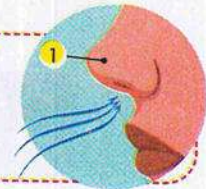
Respiration Pathway



How does the respiratory system work?

1 Nose

- The nose is the **first organ** of the respiratory system.
- Air enters the body through the **nose** and **mouth**.



2 Throat (Pharynx)

- It exists in the **digestive** and **respiratory** systems.
- It is a common path for **food** and **air**.

The pharynx moves **air** into the **trachea**.



The pharynx moves **food** into the **esophagus**.

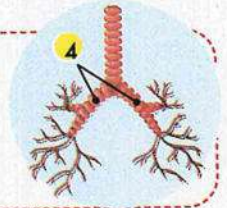
3 Trachea

- It's a tube that allows air to pass to the **two lungs**.
- Inside the lungs, the trachea is branched into two smaller tubes called "**two bronchi**".



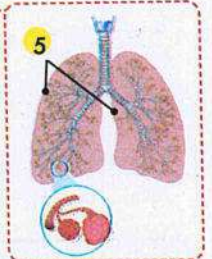
4 Two Bronchi

- They allow air to enter the **two lungs**.
- They are divided into smaller tubes that look like trees' branches, called **bronchioles**.



5 Two Lungs

- They fill up with air like **two balloons**.
- **Inside the two lungs:**
Bronchioles end with tiny air sacs surrounded by blood vessels called **alveoli**.
- **Inside the blood vessels:**
Oxygen moves into the blood, which carries oxygen to all body parts.

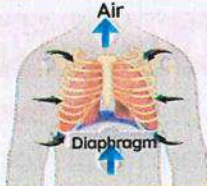


6 Diaphragm

- It's a **large muscle** at the base of the ribs that has an important role during inhalation and exhalation.



Respiration includes:

Inhalation Process "Pulling the air in"	Exhalation Process "Pushing the air out"
	
Diaphragm	
Moves downward (Shrinks or contracts)	Moves up (Relaxes or expands)
Chest Size	
Increases (Enlarges)	Decreases (Becomes narrower)
Type of Air	
Air rich in oxygen gas enters the lungs.	Air rich in carbon dioxide gas is expelled out the lungs.
Pathway of Air	
Nose → Pharynx → Trachea → Lungs	Lungs → Trachea → Pharynx → Nose

Respiration in Humans, Fish and Amphibians

	Humans 	Fish 
Differences	Humans have lungs to inhale oxygen gas from air .	Fish have gills to inhale oxygen gas from water .
Similarities	- Both of them inhale oxygen gas and exhale carbon dioxide gas. - Blood carries oxygen gas to all body parts.	

How do fish breathe?

- Fish have **gills** to breathe underwater.
- Gills are found on both sides of a **fish's head**.
 - Water enters the mouth of a fish and passes across the gills.
 - The blood vessels in the gills carry oxygen gas to the rest of the body and release carbon dioxide gas.



Amphibians

They are small animals that live **in water** and **on land**.

Habitat: Moist environment (rainforests – streams – ponds)

Frogs



Toads



Salamanders



Respiration in Amphibians

On Land

- Adult amphibians inhale oxygen gas from the air through their **lungs** (like humans).

In Water

- They can extract oxygen gas from the water using their **skin**.

Factors that cause extinction of amphibians:

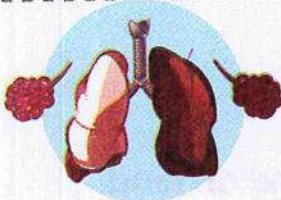
- Air pollution
- Water pollution (Viruses in water)

Human Activities that Change the Environment:

- 1 Cutting down forests
- 2 Plowing grasslands or clearing lands
- 3 Building communities
- 4 Air pollution (cars exhausts and factory pollution)
- 5 Water and soil pollution (dumping waste into waterways or soil)
- 6 Introducing plants and animals to new ecosystems

People living in cities are exposed to a high level of air pollution for long periods of time, so they will suffer from:

Lung damage



Asthma



Heart problems



Living organisms are affected by changes in the ecosystem.

Animals	Some animals can survive by moving to another ecosystem.
Plants	Plants must rely on their seeds landing in a better place for them to survive and grow.
Humans	1 Air pollution (smog) makes it hard for humans to breathe. 2 Water pollution makes it hard for human to find clean water. 3 Soil pollution makes the crops not grow.

The role of humans to help restore the ecosystem:

1
Replanting cleared
forests

2
Removing air and
water pollutants

3
Preserving native
plants and animals

Revision on Concept 1.2

Senses at Work

1 Definitions

Nocturnal animals	They are animals that become active at night to search for food.
Echolocation	It is a property used by dolphins and bats to locate their prey in the dark.
Echo	It is the reflection of sound waves back from a solid surface.
Egyptian mongooses	They are animals that communicate by producing sounds that seem like chatter.
Dolphin	It is a fish that uses the echolocation property to hunt in the dark water.
Owl	It is a bird that has a bowl-shaped face with feathers.
Nervous system	- It is the system that allows us to sense our surrounding environment. - It is the system that keeps the living organisms safe away from danger.
Brain	- It is the main control center in the human body.
Spinal cord	It is a big nerve that passes through the backbone and is connected to the brain.
Nerves	- They are branches extended all over the body parts that carry messages. - They connect the components of the nervous system together.

Sensory receptors	They are nerves found in the sensory organs and receive information from the surrounding environment.
Jerboa	It is a desert rodent that has very large ears and long hind legs.
Reaction time	It is the time taken by a living organism to respond to danger.
Reflex actions	They are messages that are transmitted so fast that you are barely aware of them.
Humpback whales	They are living organisms that sing a wide range of musical tones underwater to communicate.
Ants	They communicate together using their sense of smell.
Nurse ants	They are ants that send smelly messages to scout ants when there is a lack of food.
Scout ants	They are ants that search for food and locate it.
Soldier ants	They are ants that protect the colony from any nearby danger.
A blind person's cane	It is a special device used by a blind person to locate things nearby.
Hearing sense	It is the sense used by bats to detect an echo.
Touch sense	It is the sense used by a blind person to detect an echo.
Smell sense	It is the sense used by ants to communicate.

2 Give a reason for:

- ① Some animals are adapted to be active at night.
 - Because in very hot places, some animals hunt at night when the weather is cooler.
 - Because some prey are available at night only.
 - Because they depend on the darkness to surprise their prey.
- ② The Egyptian mongoose makes sounds.
 - To communicate with other mongooses to move and search for food.
- ③  Owls can hunt during the night.
 - Because they have extraordinary hearing and sight senses.
- ④ Dogs are used in guarding.
 - Because they have sharp hearing and smell senses.
- ⑤ Dolphins can hear different types of sounds.
 - Because they have sharp hearing sense.
- ⑥  Dolphins use the echolocation property that depends on echo.
 - To locate their prey in the dark water.
- ⑦  Owls can rotate (turn) their heads in all directions.
 - To search for the prey everywhere.
- ⑧  Owls have bowl-shaped faces.
 - To direct sound them to the owl's ears.
- ⑨  Owls have large eyes.
 - To see the tiny and far-away movements of the prey.
- ⑩  The brain has an important function in the nervous system.
 - Because it is the main control center of the body that translates messages and gives the muscles the suitable response.
- ⑪ Nerves have an important function in the nervous system.
 - Because they carry messages through the human body.
- ⑫ The Egyptian jerboa can jump for long distances.
 - Because it has long hind legs.
- ⑬ There is hair on the Egyptian jerboa's feet and toes.
 - To help it grip the sand during jumping in zigzag paths.
- ⑭ The Egyptian jerboa has large and sensitive ears.
 - To hear the quiet noise of a snake.

⑮ **Humpback whales sing a range of tones and a series of songs underwater.**

- To communicate with each other in different seasons.

⑯ **The nurse ants send smelly messages to scout ants.**

- To alert the scout ants to search for food.

⑰ **The soldier ants use smells in their communication.**

- To communicate with the other ants if there is danger nearby.

⑱ **Special cane used by blind person changes echo into vibrations.**

- To help the blind person detect his surroundings using his sense of touch.

3 What happens if:

①  **Dolphins have a weak sense of hearing?**

- They cannot detect the echo reflected from their prey, so they will not be able to hunt in the dark water.

② **The sound waves produced by a dolphin hit an object underwater?**

- The sound waves will reflect back to the dolphin in the form of an echo, so the dolphin can detect the location of the object.

③  **Bats have a weak sense of hearing?**

- They cannot detect the echo reflected from their prey.

④ **Owls cannot turn their heads in all directions?**

- They cannot search for their prey everywhere.

⑤  **Your hand touches the spines of a cactus plant?**

- Your hand will move away quickly.

⑥ **The Egyptian jerboa hears a snake moving towards it?**

- It will hop in a zigzag path to escape quickly.

⑦ **The hearing sense of humpback whales becomes weak?**

- They cannot communicate with each other.

⑧ **The smell sense of ants becomes weak?**

- They cannot communicate with each other.

⑨  **The amount of food in the ant's colony becomes low (decreases)?**

- The nurse ants will send a smelly message to the scout ants to alert them.

⑩  **There is danger near the ant's colony?**

- The soldier ants will send smelly messages to alert the other ants.

⑪ **The high-pitched sound that is produced by the blind person's cane hits an object?**

- It reflects back to the cane in the form of an echo.

4 Summary

• Animals have sharper senses than humans to:

- ① Adapt to the environment.
- ② Search for food.
- ③ Protect themselves.
- ④ Communicate together.

Egyptian Mongooses

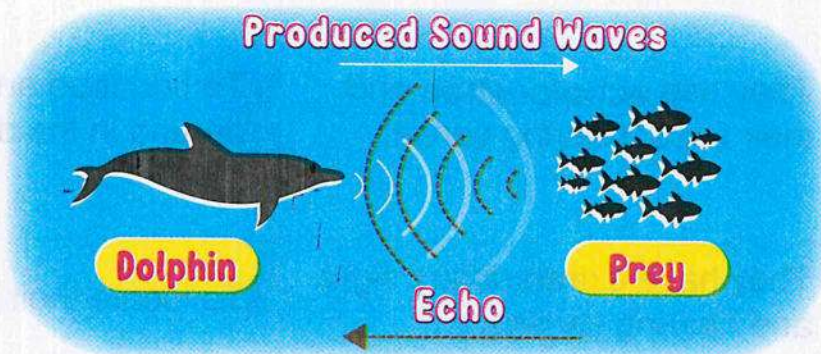
• Egyptian mongooses produce sounds that seem like chatter:

- ① To communicate together.
- ② To move and search for food.



Dolphins

- **Dolphins** use a **property** known as “**echolocation**” that depends on “**echo**” to locate their prey and objects in the dark water.



How does a dolphin locate objects in the dark water?

- ① A dolphin produces **sound waves** which travel in water.
- ② When these sound waves hit a solid object, they return back to the dolphin in the form of an **echo**.
- ③ The echo helps the dolphin locate the prey and other objects.

Nocturnal animals

They are animals that become active at night to search for food.

Why do some animals hunt at night?

- 1 In very hot places, some animals hunt at night when the weather is cooler.
- 2 Some animals depend on darkness to surprise their prey.
- 3 Some prey are available only at night.

Nocturnal Animal	Adaptation	Reason
1 Bats (Mammal) 	They use echolocation and their super hearing sense.	To find food and move around in the dark.
2 Owls (Birds) 	They have extraordinary sight and hearing senses.	To locate their prey.
	They can rotate their heads in all directions.	To search for their prey everywhere.
	They have bowl-shaped faces and feathers on their heads.	To direct sound into the owl's ears.
3 Jerboas (Desert rodents) 	They have large ears.	To help them hear the noise of nearby moving snakes.
	They have long hind legs.	To jump for long distances.
	Their feet and toes have hair.	To grip the sand when they jump in zigzag paths.

Nervous System

- Mammals, such as humans, elephants, and dogs have the **same** nervous system.

Structure of the Nervous system:

1 Brain

Function:

- It is the main control center of the body.

2 Spinal Cord

Function:

- It is a big nerve that runs through the backbone.
- It carries messages from the brain to the body parts and vice versa.

3 Nerves

Function:

- They are distributed throughout the body.
- They connect the sense organs with the brain.
- They carry messages from the brain to the spinal cord and body parts, and vice versa.

Importance of the Nervous system:

1

It gathers information through the sensory organs.

2

It interprets and processes the information.

3

It tells the body what to do.

How does the nervous system work?

- 1 **Sensory receptors** receive information from the environment.
- 2 **Nerves** carry a message from the sensory receptors to the brain.
- 3 **The brain** translates the message and tells the body what to do.

Reaction time

It is the time taken by an organism's body to respond to danger.

What happens if:

A girl touches the spine of a cactus plant?

She will move her hand away quickly.

A jerboa hears the noise of a snake?

It jumps in zigzag paths quickly to escape from the snake.

Reflexes

They are fast messages sent by the nervous system, and we are barely aware of them.

Examples:

- ① Blinking when a strange object gets closer to your eyes.
- ② Moving your hand away when you touch a spine of cactus.

① Humans Communication

- People first started sharing information using **written symbols**.
- Technology systems allow us to **call**, **text**, and send **emails** great distances.

② Ants Communication

- Ants live in **colonies** that contain thousands of individuals.
- Ants use **their sense of smell** to communicate.
- Groups of ants within a colony have **different roles**.



① Nurse Ants

Nurse ants send smelly messages to scout ants when there is a shortage (lack) of food.

② Scout Ants

- Scout ants search for food and locate it.
- Scout ants send a smelly message to alert the other ants where to find food.

③ Soldier Ants

Soldier ants use smelly messages to communicate if there is danger nearby.

3 Humpback Whales Communication

- They sing a wide range of **tones** and a series of **songs** to communicate with each other.
- The songs of humpback whales have **different sound pitches** depending on the **season**.



In Winter

- It is the **mating season**.
- Their songs have **high-pitched** sounds, which travel better in **cold** water.

In Summer

- It is the **feeding season**.
- Their songs have **low-pitched** sounds, which travel better in **warm** water.

NOTES:

- A man has a **rough** voice. (**Low**-pitched sounds)
- A woman has a **sharp** voice. (**High**-pitched sounds)



4 Bats

- Bats also use **sound** to **get information about their surroundings**.

How do bats locate objects in the dark?

- 1 A bat makes a high-pitched sound.
- 2 When the sound hits an insect, it reflects back in the form of an echo.
- 3 The bat listens for the echo and locates the insect nearby.



How does a blind person use the cane?

- 1 The special cane emits a high-pitched sound.
- 2 When the sound hits an object, it reflects as an echo.
- 3 **The special cane changes the echo into vibrations.**  To allow the blind person to detect the echo using their **thumb (touch sense)**, so they can know the directions of objects (obstacles) around them.



Revision on Concept 1.3

Light and Sight

1 Definitions

Light	It is the visible form of energy that travels in the form of waves.
Light source	It is the object that emits its own light.
Sun	It is the natural source of light.
Moon	It is the shiny object in the sky that reflects the sunlight falling on it.
Eye	It is the organ that is affected by light and is responsible for sight.
Night vision goggles	It is a tool used by humans to see objects through the dark.
Eye pupil	It controls the amount of light that enters the eye.
Fishing cat	It is a wild cat that has eyes glow at night.
Transparent materials	They are materials that allow light to pass through them.
Opaque materials	They are materials that don't allow light to pass through them.
Smooth materials	They are materials that reflect the light rays in one direction.
Rough materials	They are materials that diffuse the light rays in different directions.
Light reflection	It is the bouncing of light rays when it falls on a reflecting surface.
Shadow	It is a dark area that is formed when light falls on an opaque object.

Fireflies	They are a kind of beetles that light up their wings to communicate.
Code	It is a pattern that has a meaning.
Language	It is a code in the form of sounds.
Writing	It is a code in the form of symbols or arranged letters.

2 Give a reason for:

- ①  **The fishing cat's eyes seem to glow in the dark.**
 - Because it has a mirror-like membrane on the back of its eyes which reflects the light rays that fall on it.
- ②  **A candle is considered a source of light.**
 - Because it emits its own light.
- ③  **The moon seems shiny, but it is not considered a source of light.**
 - Because the moon reflects the sunlight falling on it.
- ④ **Nocturnal animals can see better than humans at night.**
 - Because nocturnal animals have bigger eyes and their pupils open wider than humans.
- ⑤  **The shadow of an opaque body is formed when light falls on it.**
 - Because the opaque body does not allow light to pass through it.
- ⑥ **You can see an object placed behind a glass window.**
 - Because glass is a transparent material that allows light to pass through.
- ⑦  **Fireflies use different patterns of flashlight to communicate with each other.**
 - To warn off predators or to attract a mate.
- ⑧ **Fireflies produce a chemical reaction inside their bodies.**
 - To light up their bodies and communicate with each other.

3 What happens if:

- ①  **The fishing cats' eyes doesn't have a mirror-like membrane?**
 - Fishing cats will not see well at night.

- ② **The moon cannot reflect light?**
- It becomes dark and we cannot see it at night.
- ③  **Light falls on a transparent object, such as a glass window?**
- Light will pass through the glass window.
- ④  **Light falls on an opaque object, such as a human body?**
- Light will not pass through it and a shadow will be formed.
- ⑤  **Light falls on a smooth surface (a mirror)?**
- Light rays are reflected in the same direction.
- ⑥  **Light falls on a rough surface (wood)?**
- Light rays are diffused in different directions.
- ⑦ **A firefly wants to attract a mate?**
- It produces a chemical reaction inside its body to light up.
- ⑧ **Another group of fireflies flashes nearby?**
- They will stop flashing their own pattern and start to match the pattern of the other fireflies.
- ⑨ **The traffic light becomes red while you are driving the car?**
- The eyes send a message to the brain, then the brain alerts you to stop moving.

4 Summary

- The visibility of objects depends on the amount of light, where:

In a bright place

Humans can see objects **clearly**.

In a dim light place

Humans sees objects **less clearly** and still needs more light.

In the dark

Humans **can't see** anything, so humans depends on other senses, such as touch.

- Humans can use **night vision goggles** to see in the dark.
- Humans need a source of light to see clearly.



Source of Light

It's something that emits (gives off) its own light.

Examples of Light Sources:

The Sun



Electric Lamp



Fire



Flashlight



Candle



- The moon and mirror are not considered sources of light.** 

Because they don't emit (produce) their own light, where:

The moon reflects the sunlight falling on it.

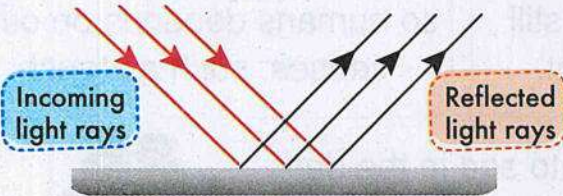
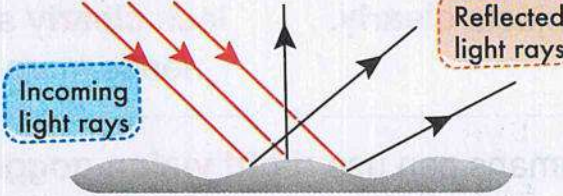


The mirror reflects any light falling on it.



Light Reflection

The light reflection depends on the smoothness of the surface.

Smooth Surface such as a polished mirror	Rough Surface such as a painted surface
	
What happens if:	
• Light falls on a smooth surface? – Light rays would be reflected in one direction with the same angle at which they hit the surface.	• Light falls on a rough surface? – Light rays would be scattered (diffused) in different directions.

Light is a visible form of energy that travels in a **straight line** in the form of **waves**.

Objects are classified into:

Transparent Objects	Opaque Objects
	
• They are the objects that allow light to pass through. • Things can be seen through them. • They don't cast shadows.	• They are the objects that don't allow light to pass through. • Things can't be seen through them. • They cast shadows.
Examples:	
Air – Water – Glass – Lenses – Window	Human body – Wood – Metals

Shadow happens when light falls on an opaque object.



Nocturnal Animals

- Nocturnal animals can see **better than** humans in dim light.

	Human	Nocturnal animal
		
	Pupil	Pupil
Eye Size	Smaller eyes	Bigger eyes
Eye Pupil	Opens narrower	Opens wider

Fishing Cat

- The fishing cat's eyes seem to glow in the dark. **GR**
 - Because it has a **mirror-like membrane** (structural adaptation) at the back of its eyes.
 - This membrane reflects any light entering its eyes.



Codes

- Humans use codes to communicate and transmit information.

Code

It is a pattern that has a meaning.

1 Thumbs-up or Thumbs-down



Thumbs-up means good.



Thumbs-down means bad.

2 Facial Expressions

They are codes that help people predict what we **feel** or **think**.

3 Language

- Language is a code in the form of **sounds** that transfer information.
- Different languages have different codes.

4 Writing

It is a code in the form of **symbols** or **arranged letters** that have a specific meaning.

5 Traffic Lights



Red means "Stop".



Green means "Go".

6 Lighthouses

They encode information in flashes of **light** to tell sailors where they are.

7 Music or Sounds

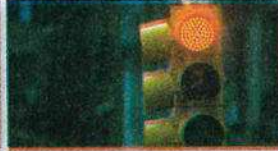
Many musical instruments can be used to transfer information in the form of a code.

Examples of Information that the Eyes Receive:

1 You see your friend waving.



2 A car stops when it sees a red traffic light.



3 Using a rescue flare to get help.



4 Hikers use mirrors that flash to attract the attention of rescue helicopter pilots.



NOTE:

- In the past, humans used **signal fires** to communicate from a distance of many kilometers.
- The brain **decodes** and **interprets** the meaning of the code.

Fireflies

- 1 They live on **mangrove trees** in Thailand.
- 2 They are a type of insect called **winged beetles (not flies)**.
- 3 Fireflies produce a **chemical reaction** inside their bodies that allows them to **light up** to communicate together.
- 4 Fireflies depend on their sense of **sight** to communicate together.



- Fireflies use their wings to make different flash patterns in regular periods of time.
 - To warn other fireflies of predators.
 - To attract a mate to reproduce.



Revision on Concept 2.1

Starting and Stopping

1 Definitions

Static object	It is the object that doesn't change its position.
Moving object	It is the object that changes its position.
Shockwave truck	It is the fastest truck in the world.
Force	It is a push or a pull that is applied on an object to move it.
Pushing force	It is the force you can do to move an object away from you.
Pulling force	It is the force you can do to move an object toward you.
Motion	It is the change of the position of an object relative to a fixed starting point.
Gravity	It is the force that pulls objects down toward the Earth.
Friction	It is the force that arises when two objects rub against each other.
Energy	It is the ability to do work.
Work	It is a force that causes an object to move a distance.

2 Importance

Jet engines in Shockwave truck	They make the Shockwave truck reach speeds more than 500 kilometers per hour.
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Parachutes in shock wave truck	They help the driver to slow down the Shockwave quickly.
Friction	It slows down or stop the moving objects.

3 Give a reason for:

- ① A jet airplane is faster than a normal truck.
 - Because a jet airplane has a more powerful engine than a normal truck.
- ② The Shockwave truck is faster than a normal truck.
 - Because it has three jet engines.
- ③ Engineers use three parachutes in the Shockwave truck designs.
 - To help the driver decrease the speed of the Shockwave truck quickly.
- ④ By increasing the number of fire extinguishers, the cart moves a longer distance.
 - Because by increasing the number of fire extinguishers, the speed of the cart will increase.
- ⑤  The static ball on the ground moves when you kick it.
 - Due to the pushing force of your leg on it.
- ⑥ When two equal pushing forces act on an object in opposite directions, the object does not move.
 - Because the forces that affect the object are balanced, so the object doesn't move.
- ⑦  When you throw a ball up, it returns to the ground.
 - Due to the gravity that pulls the ball down towards the Earth.
- ⑧  When a car crashes into a wall, it will stop moving.
 - Because the wall applied a force to the car that is equal to the force of the moving car but in the opposite direction.
- ⑨ When you stop pedaling during the movement of your bicycle, it slows down until it stops.
 - Due to the friction force between the bicycle tires and the road.

4 What happens if:

- ① You kick a static ball on the ground?
 - The ball will move due to the pushing force of your leg.
- ② The driver of Shockwave truck opens the parachutes?
 - The Shockwave truck slow down gradually until it stops.
- ③  The pulling force of the two teams are equal in the tug-of-war game?
 - The rope will not move.
- ④  The pulling force of the two teams are unbalanced in the tug-of-war game?
 - The rope will move towards the greater force.
- ⑤  You let your book out of your hand?
 - The book will fall down due to the pulling force of gravity.
- ⑥ A car run out of fuel on the flat road?
 - The speed of the car decreases gradually until it stops.
- ⑦ A car and a truck are affected by the same pushing force?
 - The car travels a longer distance than truck.
- ⑧ You push two similar toy cars with different forces?
 - The toy car that is pushed with greater force moves a longer distance than the other toy car.

5 Summary

First

Motion



- An object stays **static** when it doesn't change its position because there is **no force** acting on it.



- An object **moves** when it changes its position because there is a proper **force** acting on it.

Motion

It is the change in an object's position relative to a fixed point.

To move any static object:

1

A pushing or pulling force must act on it.

2

A change in the position happens as time passes.

Some motions are:

easy to see, such as:

A person waling down the street

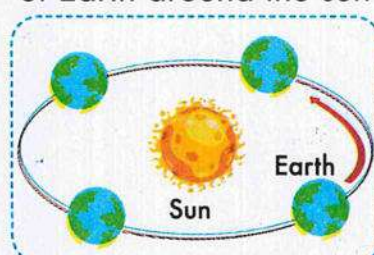


The movement of leaves by the blowing wind



hard to see, such as:

The revolution (movement) of Earth around the sun



Second Force

Force

It is a **push** or a **pull** applied on an object to change its position.

A force can:

1 Move a static object.



2 Stop a moving object.



3 Change an object's speed.



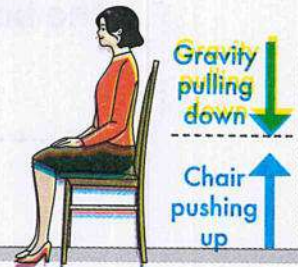
4 Change an object's direction.



The direction of force is determined by the total force applied on the object.

- When you are sitting on a chair, there is no motion. **GR** Because there are two **balanced forces** acting on you, which are:

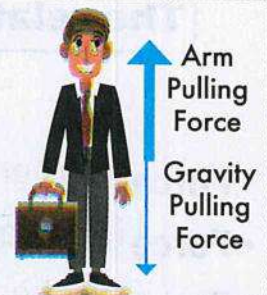
- 1 The **pulling** force of gravity **downward**.
- 2 The **pushing** force of the chair **upward**.



- When you lift a bag, there are two **unbalanced forces** acting on the bag in opposite directions, which are:

- 1 The **pulling** force of your arm **upward**.
- 2 The **pulling** force of gravity **downward**.

So, the bag moves **upward** towards the greater force.



Gravity

It is the force that pulls the objects downward.

The Effect of Force on Motion

- **By increasing the acting force on an object:**
 - It moves a longer distance.
 - Its speed increases, and its kinetic energy increases.
- **By applying the same force on different objects:**
 - The **small car** moves a **long** distance.
 - The **big truck** moves a **short** distance.



The boy who pushes the wall doesn't do any work.
Because the wall doesn't move.



The relationship between energy, work, and force:

- **Force** transfers **energy** from one object to another.
- **Force** is something that changes **energy** so that it can do **work**.
- **Energy** is the ability to do work.
- **Work** is the energy transferred by a force to move an object.

Third Force Types

1 Pulling and pushing forces

Pulling Force

It is a force that you can do to move an object toward you.



Pushing Force

It is a force that you can do to move an object away from you.



2 Balanced and unbalanced forces

In a tug-of-war game, two teams **pull** the rope in **opposite** directions.

Balanced Forces

The rope doesn't move.

- When the forces acting on the rope are **balanced**.



Unbalanced Forces

The rope moves towards the greater force.

- When the forces acting on the rope are **unbalanced**.



3 Wind force

Air force (wind blowing) can move some objects, such as the **tree leaves**.

How did engineers prove that air causes movement?



- Engineers fixed a fire extinguisher onto a static cart.
- When air is released **backward** from the extinguisher, the cart begins to move **forward**.
- By **increasing** the number of fire extinguishers, the speed of the cart **increases**, and it covers a **longer** distance.

Fourth Moving Objects



Shockwave
(World fastest truck)



- A jet engine is much faster than a truck because the jet's engine is much more powerful than the truck's engine.

- It has **three** jet engines.
- Its speed can reach **500** kilometers per hour.
- It is **five times** faster than a normal truck.

How does it move?

It moves by the **pushing** force of its powerful jet engines.

How does it stop? (As a rocket design)

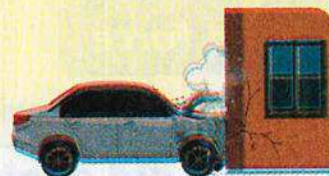
It has **three parachutes** that help the driver to slow down it quickly.

Fifth Stopping Objects

A moving object stops when a force acts on it with the **same amount**, but in the **opposite direction**.

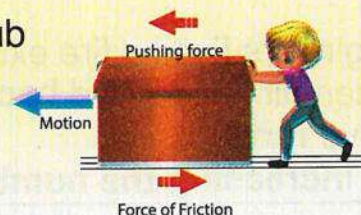
Collision

- When a moving car crashes into a wall, it stops.
- Because the wall applied force to the car in the **same amount** and in the **opposite direction**.



Friction Force

- It is the force that arises when two surfaces rub against each other.
- It acts in the **opposite** direction of the motion.
- It always **slows down** or **stops** the moving object.



Revision on Concept 2.2

Energy and Motion

1 Definitions

Potential energy	It is the energy stored in an object due to its position.
Kinetic energy	It is the energy gained by an object due to its motion.
Chemical energy	It is the energy stored in the food we eat.

2 Importance

Electric motors in roller coaster	They help carry the cars of roller coaster up to the top of the hill.
Thermal energy	It helps us in cooking food.
Light energy	It helps us light houses and streets.
Electrical energy	It helps us operate all electric devices.

3 Give a reason for:

- ①  The roller coaster doesn't need electricity during sliding down.
 - Because the stored potential energy changes to kinetic energy.
- ② The goal net vibrates when a ball hits it.
 - Because the kinetic energy of the ball transfers to the goal net.
- ③  The book on the table has energy.
 - Because the book on the table stores potential energy.
- ④  When a ball is thrown upwards, its potential energy increases.
 - Because its height from the Earth increases.

⑤ An electric lamp produces different forms of energy.

- Because it produces light and thermal energies.

⑥ On lifting the toy car operated by a spring, the car moves.

- Because the potential energy stored in the spring changes to kinetic energy.

4 What happens if:

①  A roller coaster moves up the ramp?

- The stored potential energy increases.

② The speed of the roller coaster increases during sliding down?

- Because its kinetic energy increases.

③ Food is very important for humans?

- Because burning of food in the human body produce kinetic energy that help human to move and carry out different activities.

④  A roller coaster moves down the ramp? (According to the change in energy)

- Its stored potential energy changes into kinetic energy.

⑤  An apple falls from a tree to the ground? (According to the change in energy)

- The potential energy of the apple changes into kinetic energy.

⑥  You transfer a book from a lower shelf to a higher shelf?
(According to the potential energy)

- The stored potential energy increases.

⑦  You operate a washing machine? (According to the change in energy)

- The electrical energy changes into kinetic and sound energies.

⑧  You switch on an electric lamp? (According to the change in energy)

- The electrical energy changes into light and thermal energies.

5 Summary

Energy Basics

Energy

It is the ability to do work.

Force

It is the effect that changes **energy** into **work** done.

Work

It is the force that causes an object to move.

Relationship Between Energy and Work

- The boy needs **energy** to move the box.
- The boy exerts a **pushing force** on the box.
- When the box moves, there is **work** done.



Importance of Energy for Us

1

The food we eat stores **chemical energy**.



2

Thermal energy is used for cooking food or heating water.



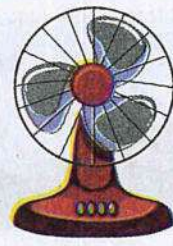
3

Light energy is used for lighting houses and streets.

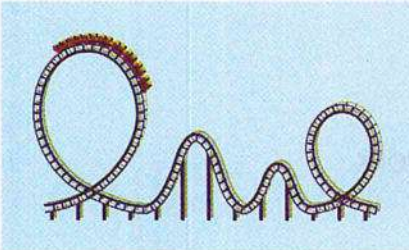


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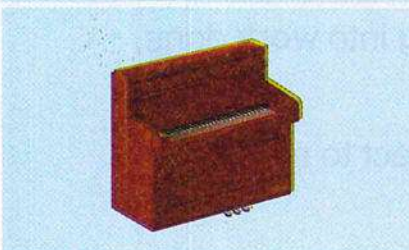
Electrical energy is used in operating electric devices.



Properties of Energy



- 1 Energy can be **stored** and changed from one form to another, such as in roller coasters.



- 2 Most forms of energy **can't be seen**, such as sound, thermal, chemical and electrical energies.



- 3 The work done by energy can be seen and measured, such as when the goal net vibrates when it gains kinetic energy.

Moving Energy

» Energy can transfer from one object to another.

Example: When a football player kicks the ball:

1

The ball on the ground has **no** energy.



2

When the player kicks the ball, kinetic energy transfers from the **player's foot** to the **ball**, so the ball moves in the air.



3

Kinetic energy transfers from the **ball** to the **goal net**, which vibrates.



Roller Coaster

At the beginning	• Electricity and motors carry the cars up to the top of the ramp.
During moving upward	 • The stored potential energy increases gradually.
At the highest point (On the ramp)	 • The stored potential energy becomes maximum.
During sliding down	 • The stored potential energy is converted into kinetic energy. • As we move down, the speed and kinetic energy increase.



Scientists Classify Energy Into Two Types

Potential Energy

- It is the energy stored in an object due to its **position**.

Example:

When you raise the ball from the ground, it stores potential energy.

Kinetic Energy

- It is the energy that an object has due to its **motion**.

When you leave the ball to fall, it gains kinetic energy.

Potential energy depends on:

- 1 The **height** of the body.
- 2 The **mass** of the body.

Kinetic energy depends on:

- 1 The **speed** of the body.
- 2 The **mass** of the body.

A static object at a height stores **potential** energy.



A moving object has **kinetic** energy.



A static object on the ground has no energy.



All forms of energy are classified into potential or kinetic energies.

1 Forms of Kinetic Energy:

1 Sound Energy	2 Light Energy	3 Electrical Energy	4 Heat Energy
			
The movement of sound waves in the air	The movement of light waves in the air	The movement of electricity through wires	The vibration of water particles during heating

2 Forms of Potential Energy

1 Gravitational Potential Energy	2 Chemical Potential Energy
	
A ball at the top of a hill stores gravitational potential energy.	- A battery stores chemical potential energy. - The chemical energy stored in a battery isn't used until the battery is connected to any device.



NOTE:

A compressed spring stores **potential energy** in it.

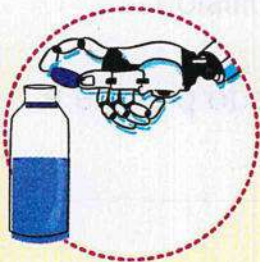


Energy Transformations

- Potential energy can be easily converted into kinetic energy.

Device	Energy Used	Energy Produced
Flashlight 	Chemical energy (Stored in a battery)	Light energy Thermal energy
Gas oven 	Chemical energy (Stored in natural gas)	Thermal energy
Spring-powered toy car 	Potential energy (Stored in the spring wire)	Kinetic energy
Real car 	Chemical energy (Stored in gasoline)	Kinetic energy Sound energy Thermal energy

Example: Robot hand



Function

Opening the jar cap that is hard to be opened.

Source of Energy

The robot is powered by batteries.

Energy Transformation

The **Chemical** energy stored in batteries is changed into **Electrical** energy in the robot's hand is changed into **Kinetic (mechanical)** energy when the robot's hand moves to open the bottle.

Revision on Concept 2.3

Energy and Collisions

1 Definitions

Collision	It is the crashing of two objects into each other.
Cricket	It is a popular game in which a player hits the ball with a wooden bat.
Speed	It is the distance traveled in a certain amount of time.

2 Importance

Wrecking ball	It is used to knock down buildings.
Seatbelt	It keeps the driver's body from moving forward during a collision.
Airbag	- It slows the speed of the driver from moving forward. - It absorbs the energy of the car during a collision.
Sensors	They tell the airbag to inflate and fill with gas to provide a soft cushion.

3 Give a reason for:

- ① The speed of the ball increases when the bat hits it hard.
 - Because the kinetic energy of the bat transfers to the ball.
- ②  Seatbelts in cars are very important.
 - Because they keep the driver's body from moving forward when the car stops suddenly.

- ③  Airbags in cars are very important.
- Because they slow down the speed of the driver moving forward and absorb the energy of the car during a collision.
- ④ When two objects collide, you can hear a sound.
- Because a part of the kinetic energy changes into sound energy.
- ⑤ Driving fast is very dangerous.
- Because when the speed of the car increases, its kinetic energy increases that results in exerting more force during a collision.
- ⑥ A truck needs a bigger engine than that of a small car to move.
- Because a truck has more mass than a car.
- ⑦  A truck consumes more fuel than that consumed by a small car.
- Because the truck has a bigger engine than the car.
- ⑧ A moving truck has more kinetic energy than a small moving car at the same speed.
- Because the truck has a greater mass than the small car.
- ⑨ The amount of energy before collision is equals to the amount of energy after collision.
- Because the energy is conserved, so it cannot be destroyed.

4 What happens if:

- ① A moving bat hits a ball in cricket?
- The kinetic energy of the bat transfers to the ball.
- ② The airbags in a car don't inflate during a crash?
- The driver will be pushed forward and get injured.
- ③  The speed of a car increases? (According to the kinetic energy)
- The kinetic energy increases.
- ④ Two cars moving in opposite directions collide?
- The damage will be more severe.
- ⑤ Two cars moving in the same direction collide?
- The damage will be less severe.
- ⑥ A bike moving fast hits a person?
- The person may get injured only and survive.

- ⑦ A car moving fast hits a person?
 - The person's life may be in danger.
- ⑧ The pushing force acting on an object increases? (According to the kinetic energy)
 - The kinetic energy will increase.
- ⑨ The kinetic energy of a moving car increases? (According to the damage of the collision)
 - The damage will be more severe.
- ⑩ You increase the angle of inclination of a ramp where a ball is moving down? (According to the speed of the ball)
 - The speed of the ball will increase.
- ⑪  Newton's cradle ball is raised up without leaving it? (According to its energy)
 - The ball stores potential energy.
- ⑫  You let the ball of Newton's cradle move towards the rest of the balls? (According to the change of energy)
 - The potential energy changes into kinetic energy.

5 Summary

Collision

It is the crashing of two objects into each other.

When two cars collide with each other:

Energy **transfers** between them.

Energy **changes** from a form to another.

Factors affecting collision

1 The speed of the two cars

Fast-Moving Objects

Slow-Moving Objects

Energy

- They have **more** energy.

- They have **less** energy.

During a Collision

- They exert **more force**, which causes a **big damage** that cannot be repaired.



- They exert **less force**, which causes **less damage** that can be repaired.



2 The direction of the two cars

When two cars are moving at different speeds and in **the same** direction:

- The damage will be **less** severe as they exert a small force during the collision.



When two cars are moving at different speeds and in **the opposite** directions:

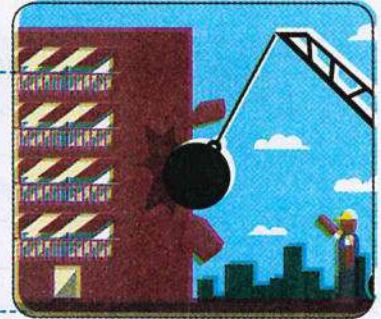
- The damage will be **more** severe as they exert a great force during the collision.



Examples for Collision:

Wrecking ball

- It is a very heavy steel ball swinging on a cable.
- It is used by construction workers to knock down walls or parts of buildings.



Cricket

- The player uses a **wooden bat** to hit the ball.

When the player hits the ball:

- Kinetic energy transfers from the **bat** to the **ball**.
- The speed of the ball **increases**.
- The ball returns in a **different direction**.
- A collision always produces a **popping sound**.



Newton's Cradle

When the ball is raised up:

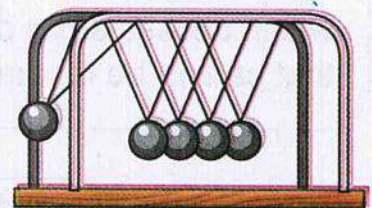
- The ball stores **potential energy** and doesn't contain any kinetic energy.

When you leave the ball:

- Potential energy decreases gradually and is converted into **kinetic energy**.

When the ball hits the 1st other ball:

- Kinetic energy transfers from the 1st ball to the rest of the balls.
- Some of the kinetic energy is converted into **sound and thermal energies**.



If a truck (more mass) hits a car (less mass):

- Energy will transfer from the truck (more mass) to the car (less mass).
Because the truck has **more energy** than the car.
- The truck (heavy object) causes more damage than the car (light object).

The truck:

Has a big mass.
Has a big engine.
Consumes more fuel.
Has more kinetic energy.

Causes more
damage than

The car:

Has a small mass.
Has a small engine.
Consumes less fuel.
Has less kinetic energy.



If a fast car (higher speed) hits a slow car (lower speed):

- Energy will transfer from the fast car (higher speed) to the slow car (lower speed).
Because the fast car has **more energy** than the slow car.
- Fast objects cause more damage than slow objects.

A fast car:

Has high energy.

Causes more
damage than

A slow car:

Has low energy.



Safety Equipment During Collision

1 Seatbelt

- It is used in cars to keep the driver and the passengers from moving **forward** during a collision (when the car stops suddenly).



2 Airbag

Material • It is made of a **thin nylon material**.

Location • It is folded into the:
steering wheel, dashboard, seats, or doors.



Idea

a During collision:

- The airbag **inflates** automatically. **GR**
Because the sensors in the car detect a crash.

Function of the sensors

They tell the airbag to inflate and fill it with gas to provide a soft cushion.

b After collision:

- The airbag **deflates** as fast as it inflates. **GR**
Because it has holes or vents that allow the gas to come out of the airbag so that the driver can get out of the car.

Importance

- It slows the speed of the driver's motion forward.
- It absorbs the energy of the car's impact during a collision.

Speed

- Speed is the distance covered by a moving object in a unit of time.
- Speed is a physical measurement that indicates how fast objects move.
- The direction of the moving object doesn't affect the speed.

How to Measure the Speed

1 You must know the distance covered by the object.	Meter or kilometer
2 You must know the time taken to cover this distance.	Second or hour
3 To find the speed: Speed = Distance ÷ Time	m/sec or km/hr

Problem:

- If Kenzy rides a bike and covers **150 m** in **15 seconds** to reach the supermarket, calculate the speed of the bike.

» Speed = $\frac{\text{Distance}}{\text{Time}} = \frac{\dots\dots\dots}{\dots\dots\dots} = \dots\dots\dots \text{ m/sec.}$



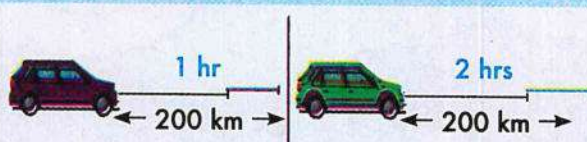
Comparing the Speed of One Body to Another

- 1 The relationship between speed and distance (At the same time)



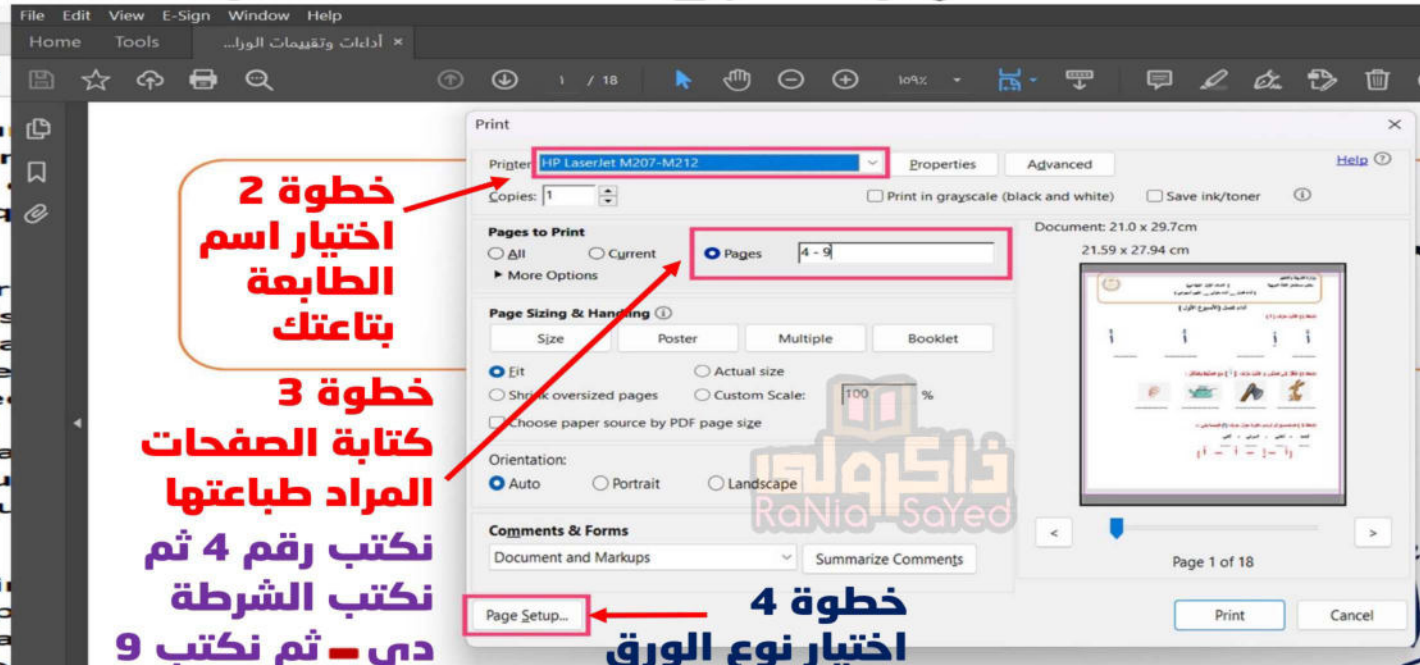
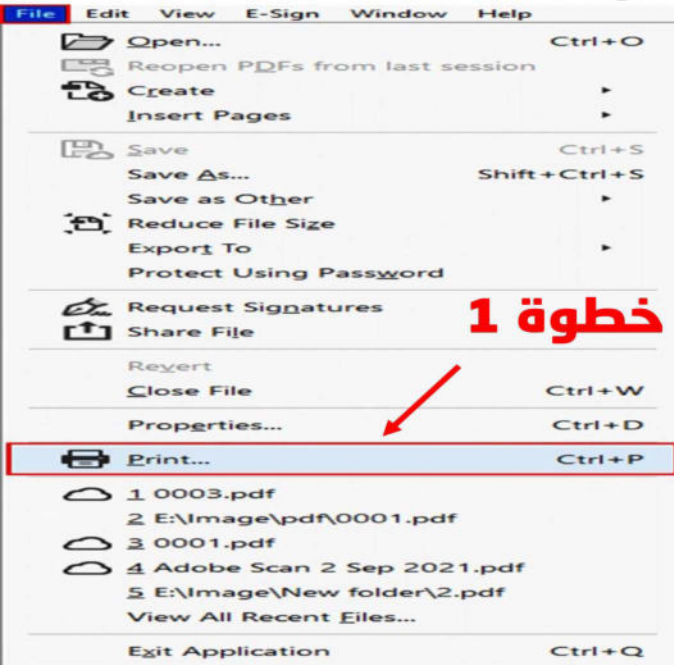
The red car moves at a **higher speed** because it covers a **longer distance** in the same amount of time.

- 2 The relationship between speed and time (At the same distance)



The purple car moves at a **higher speed** because it covers **the same distance** in **shorter time**.

كيفية طباعة صفحات معينة من ملف معين مثلا ازاي نطبع الصفحات من صفحة 4 الى صفحة 9



حمل الآن

مجاناً وحصرياً

المراجعة رقم (2)

الترم الاول



Concept

1.1

Adaptation and Survival

Evaluation Weeks 1, 2, & 3

Q1

Choose the correct answer:

- 1 Polar bears have white fur to
a. live in the desert **b.** see in the dark
c. stay warm **d.** hide from predators or prey
- 2 A penguin's feet stay warm due to its
a. fat layer **b.** blood vessels **c.** features **d.** fur
- 3 A panther chameleon changes its color to blend with the surrounding environment, this is known as
a. echolocation **b.** respiration **c.** camouflage **d.** digestion
- 4 Bull sharks can survive or live in
a. fresh water only **b.** salt water only
c. both fresh and salt water **d.** seas, rivers, and mud
- 5 In a penguin's body, dense feathers and the thick layer of fat help the penguin to be
a. warm **b.** cold **c.** predator **d.** prey
- 6 An example of a behavioral adaptation in panther chameleons is
a. having a long and sticky tongue **b.** puffing up its body when in danger
c. having V-shaped feet **d.** having brightly colored scales
- 7 The thick, white fur is a type of adaptation in
a. panther chameleons **b.** polar bears
c. fennec foxes **d.** caracals
- 8 A fennec fox has to enable blending in the desert.
a. dark colored fur **b.** thick, white fur
c. sandy-colored fur **d.** colored scales
- 9 Adaptations help living organisms to
a. go extinct **b.** survive **c.** reproduce **d.** both b and c
- 10 Camouflage means that an organism is
a. easy to be seen by predators **b.** difficult to be seen
c. easy to be seen by the prey **d.** easy to be eaten

- 11 The penguin's feet stay warm due to
 a. the movement of blood in its blood vessels
 b. the thick layers of fat
 c. the dense feathers
 d. the dense fur
- 12 A Barbary fig has to prevent animals from eating it.
 a. roots b. a soft stem c. sharp spines d. colored leaves
- 13 The long roots in acacia trees is considered a adaptation.
 a. structural b. behavioral
 c. physiological d. both structural and behavioral
- 14 grow in the desert.
 a. Acacia trees b. Palm trees c. Water lilies d. Mangrove trees
- 15 An organ which mixes food with saliva and crushes it with the teeth is the
 a. **mouth** b. stomach c. small intestine d. pharynx
- 16 An organ that stores undigested food and expels it out from the body is the
 a. esophagus b. large intestines
 c. stomach d. small intestines
- 17 The leaves in the tree change into needles to prevent it from losing water.
 a. acacia b. kapok c. pine d. mangrove
- 18 Producing poison in acacia trees is considered a adaptation.
 a. structural b. behavioral
 c. physiological d. both structural and behavioral
- 19 trees grow in salt water.
 a. Kapok b. Palm c. Mangrove d. Pine
- 20 The digestive system starts with the
 a. Throat b. nose c. anus d. mouth
- 21 Carbon dioxide is a gas to the body if we don't get rid of it.
 a. beneficial b. harmful c. useful d. a and c

- [illegible]

Q2 Put (✓) or (X): سلسلة كتب الأستاذ

- 1 The body of a penguin is covered by dense fur in order to be warm. ()
- 2 A penguin's feet don't freeze due to the thick layer of fat. ()
- 3 Camouflage helps animals in hunting their prey. ()
- 4 The exhaled air contains more oxygen gas. ()
- 5 Buttress roots of kapok trees grow upward. ()
- 6 Burning forests is one of the positive human activities on the environment. ()

- 7 An ecosystem can be restored by eliminating pollution. ()
- 8 The bodies of amphibians are covered with skin that allows water and gas to pass through. ()
- 9 The Egyptian frog lives in ponds and streams. ()
- 10 Fish breathe through the lungs. ()
- 11 Inhaled air is rich in carbon dioxide. ()
- 12 Carbon dioxide gas is expelled from the body during exhalation. ()
- 13 Fish need clean and pure water to survive. ()
- 14 Frogs can breathe through the lungs. ()
- 15 Cutting down forests can cause environmental changes. ()

Q3

Complete the following sentences:

- 1 An organ that pushes the food to the stomach is the
- 2 The muscle that helps in respiration process is the
- 3 Amphibians breathe using their and
- 4 Some of the changes that affect ecosystems are and
- 5 During exhalation, gas is released, while during inhalation, gas is taken in.
- 6 The diaphragm moves upward during and downward during
- 7 The pharynx is an organ of the system, while the lungs are organs of the system.
- 8 Fish extract the gas dissolved in water, and humans use this gas during the process.
- 9 helps polar animals hide in the snow.
- 10 Bull sharks live in
- 11 help the kapok tree to hold in the soil.
- 12 is among the organs of the digestive system.
- 13 is among the organs of the respiratory system.
- 14 The gills in fish are considered a adaptation.
- 15 Animals that can live both in water and on land are called

Q4 Write the scientific term:

- 1 It is a type of adaptation that helps animals hide from a predator or sneak up on its prey. (.....)
- 2 They are characteristics that help living organisms survive and reproduce in the ecosystem. (.....)
- 3 It is a change in the structure of an animal's body. (.....)
- 4 It is a process in which the lungs expand and fill with air. (.....)
- 5 It is the system responsible for getting rid of harmful air from the body. (.....)
- 6 It consists of organs that work together. (.....)
- 7 They are trees that grow in Amazon rainforests. (.....)
- 8 It is a tree that can live and survive securely in water. (.....)
- 9 It is a tree that lives in Savannah forests. (.....)
- 10 They are animals that can live on both land and water. (.....)
- 11 It is the continuous decrease in the number of individuals of an organism until the death of all its members. (.....)
- 12 They are special organs in fish that allow them to extract the oxygen dissolved in water and remove carbon dioxide. (.....)
- 13 They are organs in humans that work to extract oxygen from the air. (.....)
- 14 It is a pollution caused by the exhausts of cars and factories. (.....)

Q5 What is meant by:

Camouflage

.....

Q6 Determine the type of adaptation in the following:

- 1 Panther chameleons have V-shaped feet. (.....)
- 2 Fennec foxes live in burrows to stay cool. (.....)
- 3 Polar bears have thick white fur. (.....)
- 4 A panther chameleon puffs up its body to look fierce. (.....)

- 5 Bull sharks hunt in the day as well as the night.(.....)

Q7

Give an example of:

- 1 An adaptation that enables an animal to hide in its environment.

.....

- 2 A structural adaptation of living organisms.

.....

- 3 A behavioral adaptation in acacia trees.

.....

- 4 A behavioral adaptation in kapok trees.

.....

- 5 A structural adaption in water lilies.

.....

Q8

Answer the following questions:

- 1 Determine some human activities that negatively affect the air.

.....

- 2 Determine some human activities that negatively affect the water.

.....

- 3 Determine some human activities that negatively affect the soil.

.....

- 4 Explain how amphibians adapt to the environment.

.....

.....

- 5 Mention the role of the diaphragm in the respiratory process.

.....

.....

.....

.....

Q9 Give reasons for:

- 1 A fennec fox has sandy-colored fur.
.....
- 2 A penguin is covered with dense feathers.
.....
- 3 A fennec fox has extra-large ears.
.....
- 4 Palm trees have long and strong roots.
.....
- 5 Animals don't eat acacia trees' leaves.
.....
- 6 A Barbary fig has spiny leaves.
.....
- 7 A kapok tree stay upright in the soggy soil.
.....
- 8 Water lilies have wide leaves.
.....
- 9 A pine tree has a triangular shape.
.....
- 10 Fish die when they leave the water.
.....
- 11 Humans must replant forests that they cut.
.....
- 12 Humans and fish are similar in some characteristics.
.....
- 13 Amphibians can live both in water and on land.
.....
.....

Q10 What happens if:

- 1 The panther chameleon has no V-shaped feet?
.....

2 Living organisms cannot adapt with environmental or ecosystem changes?

.....

3 A fennec fox has short ears?

.....

4 The Arctic fox doesn't have thick white fur?

.....

5 Humans don't chew the food?

.....

.....

6 You stop breathing for a long time?

.....

.....

7 A plant was transferred from one environment to another?

.....

8 Palm trees have no thick and strong roots?

.....

9 Acacia trees don't produce a poison?

.....

10 Humans' lungs are replaced by gills?

.....

11 People cut down forests and plow grasslands?

.....

12 Many communities are built and agriculture is neglected?

.....

13 Saliva is not secreted during digestion?

.....

.....

14 The small intestine is not part of the digestive system?

.....

.....

Q1

Choose the correct answer:

- 1 The main control center of the body is the
 a. nerves b. brain c. spinal cord d. stomach
- 2 Echolocation helps dolphins identify the of their prey.
 a. color b. location c. smell d. taste
- 3 Feeling hot or cold depends on the sensory receptors in the
 a. skin b. eyes c. ears d. stomach
- 4 The organ that processes the information collected from the eyes is the
 a. eye b. spinal cord c. nerves d. brain
- 5 The time it takes for the body to react to different information (danger) is called the time.
 a. absorption b. digestion c. reaction d. respiration
- 6 Ants communicate with each other using
 a. sight b. smell c. touch d. hearing
- 7 The system collects information about what is happening inside and outside the body.
 a. respiratory b. digestive c. nervous d. urinary
- 8 Some messages are sent by the nervous system so fast that you are barely aware of them; these are known as
 a. heart b. brain c. reflexes d. stomach
- 9 A blind person's cane emits to tell him the directions.
 a. smells b. lights c. vibrations d. tones
- 10 Humpback whales communicate with each other through
 a. dancing b. flashing c. singing d. light
- 11 Sensory receptors collect information from the surroundings and send it to the for processing.
 a. lungs b. spinal cord c. nerves d. brain
- 12 The is the organ responsible for hearing.
 a. eye b. ear c. tongue d. mouth

13 The system receives and translates information.

- a. digestive b. nervous c. respiratory d. urinary

14 Sharp sounds are-pitched sounds.

- a. no b. low c. medium d. high

Q2 Put (✓) or (X):

- 1 Dolphins have a stronger sense of hearing than humans. ()
- 2 Bats rely on echolocation to find food. ()
- 3 The spinal cord is the main control center in the human body. ()
- 4 We can differentiate between hot and cold objects using the digestive system. ()
- 5 Animals that are active at night are called nocturnal animals. ()
- 6 Ants can communicate with each other by singing. ()
- 7 Egyptian jerboas depend on echolocation to find food. ()
- 8 The brain is the main control center in the human body. ()
- 9 We can differentiate between hot and cold objects by the sensory receptors. ()
- 10 The scientific idea of a blind person's cane is echolocation. ()

Q3 Complete the following sentences:

- 1 The nervous system consists of the,, and
- 2 and are examples of nocturnal animals.
- 3 Among the organisms that have the ability to locate their prey by echolocation are and
- 4 The brain is part of the system.
- 5 The is like the command for the human body.
- 6 send(s) messages to the brain.
- 7 Dolphins use to know the location of their prey.
- 8 The processes and interprets data.

Q4

Complete the following sentences using the words between the brackets:

(nerves – echolocation – smelly messages – brain – hearing)

- 1 When the Egyptian jerboa feels danger, the brain sends messages to its legs through the
- 2 Ants communicate with each other by sending
- 3 Bats can locate their prey using
- 4 Sense organs collect information from the surroundings and send it to the to be interpreted.
- 5 Humpback whales communicate with each other through

Q5

Write the scientific term:

- 1 It is the property by which dolphins and bats can locate their prey. (.....)
- 2 They are animals that are active at night. (.....)
- 3 It is the body system that controls all body functions and nerves are part of it. (.....)
- 4 It is a bird that can turn its head backwards and has a bowl-shaped head with large eyes. (.....)
- 5 It is the main control unit in the human body. (.....)
- 6 They are nerves connected directly to the brain. (.....)
- 7 It is a property used in blind people canes to help them detect their surroundings. (.....)
- 8 It is the time taken by the body to react to different information, such as danger. (.....)
- 9 It is the time taken by the body to receive information from the environment. (.....)
- 10 They are organisms that communicate with each other through the sense of smell. (.....)

Q6

What is meant by:

- Response time

.....

Q7

Mention one function of:

- 1 The brain in the human body.

.....

- 2 The spinal cord in the human body.

.....

- 3 The nerves in the human body.

.....

- 4 The nervous system in the human body.

.....

- 5 The cane used by a blind person.

.....

Q8

Mention the similarities between a bat and a blind person cane:

.....

.....

.....

Q9

Explain how a bat uses echolocation:

.....

.....

.....

.....

.....

Q10

Choose from column (A) what suits it in column (B):

A

Column (A)	Column (B)
1 The brain	a. carry messages from the brain to the spinal cord and other parts of the body.
2 Spinal cord	b. is the main control center of the body.
3 Nerves	c. is a big nerve that runs through the backbone.

1 2 3

B

Column (A)	Column (B)
1 Bats	a. send smelly messages to communicate.
2 Humpback whales	b. use echolocation to locate their prey.
3 Ants	c. are desert rodents with long hind legs.
4 Egyptian jerboas	d. can sing underwater to communicate with each other.

1 2 3 4

Q11

Give reasons for:

1 Bats can locate their prey in the dark.

.....

2 The Egyptian mongoose makes sounds.

.....

3 Dolphins can hear different types of sounds.

.....

- 4 Animals that live in hot places become active at night.

.....

.....

- 5 Humpback whales sing underwater.

.....

.....

- 6 A blind person can detect his surroundings.

.....

.....

.....

- 7 The Egyptian jerboa jumps quickly when it senses danger.

.....

.....

Q12

What happens if:

- 1 Owls don't have large ears? سلسلة كتب الـ

.....

.....

- 2 Nerves are not part of the human body?

.....

.....

- 3 Animals cannot locate their prey?

.....

.....

- 4 The Egyptian jerboa hears a snake moving towards it?

.....

.....

- 5 Your hand touches the thorns of a cactus plant? سلسلة كتب الاستاذ

.....

.....

- 6 The Egyptian jerboa does not have a long leg?

.....

.....

- 7 The jerboa does not have an ear that is sensitive to sound?

.....

.....

- 8 Humpback whales cannot sing underwater?

.....

.....

Concept

1.3

Light and Sight

Evaluation Weeks 6, 7, & 8

Q1

Choose the correct answer:

- 1 Light is a form of
a. force b. work c. matter d. energy
- 2 Which of the following is an opaque object?
a. Air b. Water c. Wood d. Glass
- 3 When light falls on a mirror, it is
a. absorbed b. refracted c. scattered d. reflected
- 4 Among natural sources of light is the
a. lamp b. moon c. candle d. Sun
- 5 If Hossam wants to make a box to see its contents from the outside, which of the following materials can he use?
a. Cardboard b. Transparent glass
c. Opaque plastic d. Carton
- 6 Light travels in lines.
a. zigzag b. straight c. circular d. curved
- 7 The process of vision occurs as a result of the of light.
a. scattering b. reflection c. absorption d. refraction
- 8 Which of the following materials reflect light best?
a. Wood b. Cloth c. Mirrors d. Rock
- 9 Man uses to communicate.
a. echolocation b. camouflage
c. sight and hearing d. sleeping
- 10 Your eyes use to collect information.
a. sound b. smell c. sound and light d. light
- 11 Travelers use to attract the attention of helicopter pilots to rescue them.
a. sound b. mirrors c. wood d. food
- 12 Writing and reading are ways to communication between
a. plants b. animals c. humans d. ants

Q4 Write the scientific term:

- 1 It is the organ affected by light and responsible for vision. (.....)
- 2 They are materials that allow light to pass through them. (.....)
- 3 They are objects through which light is emitted. (.....)
- 4 They are materials that we can't see through. (.....)
- 5 It is a pattern that has a meaning. (.....)
- 6 They can communicate together by flashing (lighting). (.....)
- 7 It includes raising your thumb up or down. (.....)

Q5 What is meant by:

- Code

Q6 Answer the following questions:

- 1 Mention two examples of codes used by humans in their daily lives.
.....
- 2 Explain how bats communicate with each other.
.....
.....
- 3 Mention an example of behavioral adaptation in fireflies.
.....
.....
- 4 Mention one benefit of the flashes emitted by fireflies.
.....
.....

Q7 Give reasons for:

- 1 The moon is not a source of light.
.....
- 2 Fireflies emit a luminous flash.
.....

3 Humans sometimes use codes.

.....

4 Glass is a transparent material.

.....

.....

5 Wood is an opaque material.

.....

.....

Q8

What happens if:

1 Light falls on a rough surface, such as wood or paper?

.....

2 Light falls on a smooth surface, such as a mirror?

.....

3 The backcountry hikers do not have mirrors?

.....

4 Codes have no meaning?

.....

5 Fireflies do not emit flashes?

.....

.....

.....

Concept

2.1

Starting and Stopping

Evaluation Weeks 9 & 10

Q1

Put (✓) or (X):

- 1 Objects do not move if no force affects them. ()
- 2 The body is static when it moves from one place to another. ()
- 3 The engine of a jet plane is weaker than the engine of a car. ()
- 4 The movement of planets can be seen in the sky. ()
- 5 Friction acts in the same direction of the motion of the body. ()
- 6 If a balanced force acts on a body, it moves. ()
- 7 Opening the desk drawer is a pulling force. ()
- 8 An object moves a greater distance if a greater pushing force is exerted on it. ()

Q2

Complete the following sentences:

- 1 The body whose position does not change is in a state.
- 2 causes the movement of static bodies.
- 3 The fastest truck in the world is the truck.
- 4 The Shockwave truck is stopped by
- 5 Opening the door handle is a force.
- 6 The speeds of trucks differ according to the
- 7 Kicking the ball is a force, while tightening the hook is a pulling force.
- 8 There are two types of forces: and forces.
- 9 A moving object is acted on by forces, while a body at rest is acted on by balanced forces.
- 10 There are two types of forces: and
- 11 An apple falling from a tree is caused by the, while kicking a ball is an example of a
- 12 When an unbalanced force acts on a body, it
- 13 An apple falling from the tree is caused by the force of
- 14 When a force acts against the direction of motion of an object, its speed
- 15 An object moves when an force acts on it.

Q3

Write the scientific term:

- 1 It is the change in the place of the body from one place to another.
(.....)
- 2 It is a force that pulls objects down toward the Earth. (.....)
- 3 It is the amount of energy required to move an object through the force acting on it. (.....)
- 4 It is a force that arises between the surfaces of two bodies in contact.
(.....)
- 5 It is the ability to do work. (.....)

Q4

What is meant by:

- 1 Pushing force سلسلة كتب الأستاذ
.....
- 2 Pulling force
.....
- 3 Movement (Motion)
.....
.....
- 4 Gravity
..... سلسلة كتب الأستاذ
.....
- 5 Energy
.....
- 6 Force
.....
.....

Q5 Answer the following questions:

- 1 Give an example of an easily seen movement and another that cannot be seen.
.....
.....
- 2 Give an example of both a pushing force and a pulling force.
.....
.....
- 3 Give an example of an object that is affected by unbalanced forces.
.....
.....
- 4 Mention an example of an object that has balanced forces acting on it.
.....
- 5 Mention the state of the body when balanced and other unbalanced forces affect it.
.....
.....
- 6 Explain the difference in the distance traveled by two cars of different masses.
.....
.....

Q6 Give reasons for:

- 1 A body does not move when it is acted upon by balanced forces.
.....
- 2 A cart starts moving when the gases come out of the fire extinguishers.
.....
.....
- 3 The speed of a jet plane is greater than the speed of a truck.
.....

- 4 The distance traveled by a car varies according to its mass.

.....

.....

- 5 An object moves when unbalanced forces act on it.

.....

.....

- 6 The speed of a car decreases when the brakes are applied.

.....

.....

Q7

What happens if:

- 1 An object is affected by unbalanced forces?

.....

.....

- 2 An object is affected by balanced forces?

.....

.....

- 3 We increase the number of fire extinguishers on the cart?

.....

.....

- 4 We kick the ball with a certain force?

.....

.....

- 5 We press the brakes of the car?

.....

.....

Concept

2.2

Energy and Motion

Evaluation Weeks 11 & 12

Q1

Put (✓) or (x):

- 1 Kinetic energy is transferred when a moving car collides with another at rest. ()
- 2 The kinetic energy of objects increases as their speed increases. ()
- 3 A ball at rest on the ground has kinetic energy. ()
- 4 When a roller coaster reaches the top, it stores kinetic energy. ()
- 5 When an electric heater is turned on, it produces thermal energy. ()
- 6 The energy stored in food is chemical energy. ()
- 7 The energy stored in a spring is kinetic energy. ()
- 8 Electrical energy is converted into light energy in the heater. ()

Q2

Correct the underlined words:

- 1 A person at the top of a tower has the most kinetic energy. (.....)
- 2 Potential energy is transferred from your foot to the ball when you kick it. (.....)
- 3 The ability to do work or make a change is known as power. (.....)
- 4 Kinetic energy is the energy stored inside the body. (.....)
- 5 In an electric fan, electrical energy is converted into chemical energy. (.....)
- 6 An example of kinetic energy is gravitational energy. (.....)
- 7 An example of potential energy is sound energy. (.....)
- 8 The gasoline inside a car stores kinetic energy. (.....)

Q3

Complete the following sentences:

- 1 An object at the top of a hill has no energy.
- 2 Energy is what affects different objects and makes them change their
.....
- 3 The speed of a roller coaster increases as it moves towards the
of the ramp.
- 4 energy increases as the speed of the object increases.

- 5 The energy used to carry a roller coaster up is
- 6 When a skateboarder reaches the top of a hill and stops, his kinetic energy is
- 7 When you push a small box with your foot, energy is transferred from to
- 8 A has chemical potential energy.
- 9 As the mass of an object increases, the energy increases.
- 10 In a flashlight, energy is converted into energy.
- 11 As the height of an object increases, the energy increases.
- 12 Chemical energy is considered energy.
- 13 Light energy is considered energy.
- 14 The forms of energy are divided into two main types: and
- 15 When you clap your hands, energy is converted into energy.
- 16 In an electric fan, energy is converted into energy.
- 17 The factors affecting kinetic energy are and

Q4 Write the scientific term:

- 1 It is the energy stored inside objects. (.....)
- 2 It is the energy possessed by an object due to its motion. (.....)
- 3 It is the energy that gasoline stores inside the car. (.....)
- 4 It is an energy that includes light energy. (.....)
- 5 It is the force that is affected by the heights of objects. (.....)

Q5 What is meant by:

1 Energy

.....

2 Kinetic energy

.....

3 Potential energy

.....

Q6 Answer the following questions:

1 Mention the type of energy in the following:

a. A book on a table.

b. The energy stored in batteries.

2 Mention one form of kinetic energy.

Movement of sound waves in the air – Movement of light waves in the air

3 Mention one form of potential energy.

.....

Q7 Give reasons for:

1 A book on the table has energy.

.....

.....

2 The food we eat has energy.

.....

3 A car on the road has energy.

.....

Q8 What happens when:

1 We turn on the gas oven.

.....

2 We turn on the fan in the house.

.....

3 We squeeze a spring.

.....

.....

Concept

2.3

Energy and Motion

Evaluation Weeks 13 & 14

Q1

Put (✓) or (X):

- 1 The greater the angle of inclination, the greater the speed of the moving object is. ()
- 2 When the speed of a car increases, its kinetic energy decreases. ()
- 3 When a car stops suddenly, the passengers rush backward. ()
- 4 The risks resulting from a collision increase with the increase in mass. ()
- 5 Mass is one of the factors that affect speed. ()
- 6 The direction of movement of an object affects the force of its collision. ()
- 7 Energy before collision is different from energy after collision. ()
- 8 The thermal energy produced by the pendulum is due to the force of gravity. ()
- 9 The more speed doubles, the greater the kinetic energy. ()

Q2

Correct the underlined words: سلسلة كثر

- 1 The speed decreases by increasing the distance. (.....)
- 2 The wrecking ball is a ball of light mass. (.....)
- 3 The material moves when the collision between two bodies occurs. (.....)
- 4 When the speed of a body increases, the force of the collision decreases. (.....)

Q3

Complete the following sentences:

- 1 A wrecking ball is made of
- 2 The speed increases by increasing the سلسلة كثر الدسقا
- 3 The unit of speed is or
- 4 Energy is transferred when occurs.
- 5 A wrecking ball is used in
- 6 When a tennis ball hits the racket, we hear
- 7 The kinetic energy of a body increases with increasing its
- 8 The distance traveled by a body is measured in
- 9 Kinetic energy increases with the and

- 10 Among the security and safety equipment in the car are the and
- 11 Speed depends on two main factors, which are and
- 12 The stronger increases the risk during collision.
- 13 When the mass of a body increases, the force of collision
- 14 Fuel consumption increases in cars.
- 15 The total energy before the collision is the total energy after the collision.
- 16 The risk of collision increases by increasing the and
- 17 Newton's cradle loses energy in the form of and energy.

Q4

Write the scientific term:

- 1 It's a physical quantity determined by distance and time. (.....)
- 2 It's the distance traveled during a unit of time. (.....)
- 3 It's a very heavy ball used to knock down buildings. (.....)
- 4 It is a safety equipment that prevents the body from moving forward when a car crashes. (.....)
- 5 It occurs when two things bump or crash each other. (.....)
- 6 It's a tool used to show energy transitions during collision. (.....)
- 7 It's an audible energy produced during a collision. (.....)
- 8 It's the energy stored in Newton's cradle when lifting a ball upwards. (.....)

Q5

Answer the following questions:

- 1 Mention a means of safety in the car.
.....
- 2 Mention the equation by which the speed of a car can be determined.
.....

- 3 Mention the energy transitions in Newton's cradle.

.....

.....

- 4 Mention the relationship between energy before collision and energy after collision.

.....

.....

- 5 Mention the relationship between the speed of the body and its kinetic energy.

.....

.....

- 6 Mention the relationship between the speed of the body and the force of collision.

.....

.....

- 7 A car traveled a distance of 200 kilometers in two hours. Calculate its speed.

.....

.....

- 8 Calculate the speed of a car that travels a distance of 500 km every 5 hours.

.....

.....

Q6 Give reasons for:

- 1 A driver uses the seatbelt while driving.

.....

.....

- 2 A larger body in mass causes more damage in collision.

.....

.....

- 3 The airbag is very important in the car.

.....

.....

- 4 In a Newton's cradle, energy loss occurs in the form of thermal energy.

.....

.....

- 5 The collision increases with increasing the mass.

.....

.....

Q7 What happens if:

- 1 A ball collides with the tennis bat?

.....

.....

- 2 The angle of inclination of a moving object increases?

.....

.....

- 3 Two cars moving in the same direction collide?

.....

.....

- 4 Two cars moving in opposite directions collide?

.....

.....

- 5 Two bodies collide with each other?

.....

.....

- 6 The speed of a body increases? (According to its kinetic energy)

.....

.....

Concept

1.1

Adaptation and Survival

Evaluation Weeks 1, 2, & 3

Q1

Choose the correct answer:

- 1 Polar bears have white fur to
a. live in the desert
b. see in the dark
c. stay warm
d. hide from predators or prey
- 2 A penguin's feet stay warm due to its
a. fat layer
b. blood vessels
c. features
d. fur
- 3 A panther chameleon changes its color to blend with the surrounding environment, this is known as
a. echolocation
b. respiration
c. camouflage
d. digestion
- 4 Bull sharks can survive or live in
a. fresh water only
b. salt water only
c. both fresh and salt water
d. seas, rivers, and mud
- 5 In a penguin's body, dense feathers and the thick layer of fat help the penguin to be
a. warm
b. cold
c. predator
d. prey
- 6 An example of a behavioral adaptation in panther chameleons is
a. having a long and sticky tongue
b. puffing up its body when in danger
c. having V-shaped feet
d. having brightly colored scales
- 7 The thick, white fur is a type of adaptation in
a. panther chameleons
b. polar bears
c. fennec foxes
d. caracals
- 8 A fennec fox has to enable blending in the desert.
a. dark colored fur
b. thick, white fur
c. sandy-colored fur
d. colored scales
- 9 Adaptations help living organisms to
a. go extinct
b. survive
c. reproduce
d. both b and c
- 10 Camouflage means that an organism is
a. easy to be seen by predators
b. difficult to be seen
c. easy to be seen by the prey
d. easy to be eaten

- 11 The penguin's feet stay warm due to
 a. the movement of blood in its blood vessels
 b. the thick layers of fat
 c. the dense feathers
 d. the dense fur
- 12 A Barbary fig has to prevent animals from eating it.
 a. roots b. a soft stem c. sharp spines d. colored leaves
- 13 The long roots in acacia trees is considered a adaptation.
 a. structural b. behavioral
 c. physiological d. both structural and behavioral
- 14 grow in the desert.
 a. Acacia trees b. Palm trees c. Water lilies d. Mangrove trees
- 15 An organ which mixes food with saliva and crushes it with the teeth is the
 a. mouth b. stomach c. small intestine d. pharynx
- 16 An organ that stores undigested food and expels it out from the body is the
 a. esophagus b. large intestines
 c. stomach d. small intestines
- 17 The leaves in the tree change into needles to prevent it from losing water.
 a. acacia b. kapok c. pine d. mangrove
- 18 Producing poison in acacia trees is considered a adaptation.
 a. structural b. behavioral
 c. physiological d. both structural and behavioral
- 19 trees grow in salt water.
 a. Kapok b. Palm c. Mangrove d. Pine
- 20 The digestive system starts with the
 a. Throat b. nose c. anus d. mouth
- 21 Carbon dioxide is a gas to the body if we don't get rid of it.
 a. beneficial b. harmful c. useful d. a and c

- 1 The body of a penguin is covered by dense fur in order to be warm. (X)
- 2 A penguin's feet don't freeze due to the thick layer of fat. (X)
- 3 Camouflage helps animals in hunting their prey. (✓)
- 4 The exhaled air contains more oxygen gas. (X)
- 5 Buttress roots of kapok trees grow upward. (✓)
- 6 Burning forests is one of the positive human activities on the environment. (X)

- 7 An ecosystem can be restored by eliminating pollution. (✓)
- 8 The bodies of amphibians are covered with skin that allows water and gas to pass through. (✓)
- 9 The Egyptian frog lives in ponds and streams. (✓)
- 10 Fish breathe through the lungs. (X)
- 11 Inhaled air is rich in carbon dioxide. (X)
- 12 Carbon dioxide gas is expelled from the body during exhalation. (✓)
- 13 Fish need clean and pure water to survive. (✓)
- 14 Frogs can breathe through the lungs. (✓)
- 15 Cutting down forests can cause environmental changes. (✓)

Q3

Complete the following sentences:

- 1 An organ that pushes the food to the stomach is the esophagus.
- 2 The muscle that helps in respiration process is the diaphragm.
- 3 Amphibians breathe using their lungs and skin.
- 4 Some of the changes that affect ecosystems are cutting down trees and air pollution.
- 5 During exhalation, carbon dioxide gas is released, while during inhalation, oxygen gas is taken in.
- 6 The diaphragm moves upward during exhalation and downward during inhalation.
- 7 The pharynx is an organ of the digestive/respiratory system, while the lungs are organs of the respiratory system.
- 8 Fish extract the oxygen gas dissolved in water, and humans use this gas during the inhalation process.
- 9 White fur helps polar animals hide in the snow.
- 10 Bull sharks live in fresh and salt water.
- 11 Buttress roots help the kapok tree to hold in the soil.
- 12 The mouth is among the organs of the digestive system.
- 13 The nose is among the organs of the respiratory system.
- 14 The gills in fish are considered a structural adaptation.
- 15 Animals that can live both in water and on land are called amphibians.

Q4 Write the scientific term:

- 1 It is a type of adaptation that helps animals hide from a predator or sneak up on its prey. (**Camouflage**)
- 2 They are characteristics that help living organisms survive and reproduce in the ecosystem. (**Adaptations**)
- 3 It is a change in the structure of an animal's body. (**Structural adaptation**)
- 4 It is a process in which the lungs expand and fill with air. (**Inhalation process**)
- 5 It is the system responsible for getting rid of harmful air from the body. (**Respiratory system**)
- 6 It consists of organs that work together. (**System**)
- 7 They are trees that grow in Amazon rainforests. (**Kapok trees**)
- 8 It is a tree that can live and survive securely in water. (**Mangrove tree**)
- 9 It is a tree that lives in Savannah forests. (**Acacia tree**)
- 10 They are animals that can live on both land and water. (**Amphibians**)
- 11 It is the continuous decrease in the number of individuals of an organism until the death of all its members. (**Extinction**)
- 12 They are special organs in fish that allow them to extract the oxygen dissolved in water and remove carbon dioxide. (**Gills**)
- 13 They are organs in humans that work to extract oxygen from the air. (**Lungs**)
- 14 It is a pollution caused by the exhausts of cars and factories. (**Air pollution**)

Q5 What is meant by:

Camouflage

It is a type of adaptation that helps animals hide from a predator or sneak up on their prey.

Q6 Determine the type of adaptation in the following:

- 1 Panther chameleons have V-shaped feet. (**Structural adaptation**)
- 2 Fennec foxes live in burrows to stay cool. (**Behavioral adaptation**)
- 3 Polar bears have thick white fur. (**Structural adaptation**)
- 4 A panther chameleon puffs up its body to look fierce. (**Behavioral adaptation**)

- 5 Bull sharks hunt in the day as well as the night. (**Behavioral adaptation**)

Q7

Give an example of:

- 1 An adaptation that enables an animal to hide in its environment.

A polar bear has white fur to hide in snow.

- 2 A structural adaptation of living organisms.

Penguins have a thick fat layer and dense feathers.

- 3 A behavioral adaptation in acacia trees.

Acacia trees produce poison to make the leaves taste very bad.

- 4 A behavioral adaptation in kapok trees.

They can send smelly messages by wind to attract bats.

- 5 A structural adaptation in water lilies.

Water lilies have wide leaves floating on water.

Q8

Answer the following questions:

- 1 Determine some human activities that negatively affect the air.

Cutting down trees – Farming and clearing lands

- 2 Determine some human activities that negatively affect the water.

Water pollution – Throwing waste in waterways

- 3 Determine some human activities that negatively affect the soil.

Cutting down trees – Throwing waste in soil

- 4 Explain how amphibians adapt to the environment.

On land: Amphibians breathe oxygen through their lungs.

In water: Amphibians breathe the oxygen dissolved in water through their skin.

- 5 Mention the role of the diaphragm in the respiratory process.

During inhalation, the air rich in oxygen enter the lungs, and the diaphragm moves down.

During exhalation, carbon dioxide is expelled out of the lungs, and the diaphragm moves up.

Q9

Give reasons for:

- 1 A fennec fox has sandy-colored fur.

To blend in with the sand of the desert and make camouflage.

- 2 A penguin is covered with dense feathers.

To keep its body warm.

- 3 A fennec fox has extra-large ears.

To keep its body cool and to lose heat.

- 4 Palm trees have long and strong roots.

To resist strong winds.

- 5 Animals don't eat acacia trees' leaves.

Because their leaves have sharp spines.

- 6 A Barbary fig has spiny leaves.

To prevent animals from eating its leaves and fruits.

- 7 A kapok tree stay upright in the soggy soil.

Because it has buttress roots that fix it in the soggy soil

- 8 Water lilies have wide leaves.

To float on water and absorb large amounts of sunlight.

- 9 A pine tree has a triangular shape.

To allow snow to slide easily over it without breaking its branches.

- 10 Fish die when they leave the water.

Because they breathe in oxygen gas from the water through their gills.

- 11 Humans must replant forests that they cut.

To restore the ecosystem and decrease pollution.

- 12 Humans and fish are similar in some characteristics.

Both of them breathe in oxygen gas and breathe out carbon dioxide gas.

- 13 Amphibians can live both in water and on land.

Because on land they can breathe using their lungs and in water they can breathe through their skin.

Q10

What happens if:

- 1 The panther chameleon has no V-shaped feet?

It can't hold the branches of the tree.

- 2 Living organisms cannot adapt with environmental or ecosystem changes?

They can't survive or reproduce.

- 3 A fennec fox has short ears?

It can't cool its body and can't hear the prey.

- 4 The Arctic fox doesn't have thick white fur?

It can't keep its body warm and can't hide in the snow.

- 5 Humans don't chew the food?

Swallowing of food would be difficult, so the digestive system can't digest the food well.

- 6 You stop breathing for a long time?

You will die because you need oxygen gas to get energy to survive and grow.

- 7 A plant was transferred from one environment to another?

It may adapt to the new environment or it can't survive.

- 8 Palm trees have no thick and strong roots?

They can't resist strong wind, so the wind will damage them.

- 9 Acacia trees don't produce a poison?

The giraffe will eat its leaves easily.

- 10 Humans' lungs are replaced by gills?

Humans could breathe the dissolved oxygen from water.

- 11 People cut down forests and plow grasslands?

Oxygen gas will decrease, so air pollution will increase.

- 12 Many communities are built and agriculture is neglected?

Oxygen gas decreases, so air pollution increases.

- 13 Saliva is not secreted during digestion?

Food can't be moistened and the swallowing of food becomes difficult.

- 14 The small intestine is not part of the digestive system?

The digestion process can't happen, so the body can't get nutrients to get energy.



سلسلة كتب الأستاذ



سلسلة كتب الأستاذ

Q1 Choose the correct answer:

- 1 The main control center of the body is the
 a. nerves b. brain c. spinal cord d. stomach
- 2 Echolocation helps dolphins identify the of their prey.
 a. color b. location c. smell d. taste
- 3 Feeling hot or cold depends on the sensory receptors in the
 a. skin b. eyes c. ears d. stomach
- 4 The organ that processes the information collected from the eyes is the
 a. eye b. spinal cord c. nerves d. brain
- 5 The time it takes for the body to react to different information (danger) is called the time.
 a. absorption b. digestion c. reaction d. respiration
- 6 Ants communicate with each other using
 a. sight b. smell c. touch d. hearing
- 7 The system collects information about what is happening inside and outside the body.
 a. respiratory b. digestive c. nervous d. urinary
- 8 Some messages are sent by the nervous system so fast that you are barely aware of them; these are known as
 a. heart b. brain c. reflexes d. stomach
- 9 A blind person's cane emits to tell him the directions.
 a. smells b. lights c. vibrations d. tones
- 10 Humpback whales communicate with each other through
 a. dancing b. flashing c. singing d. light
- 11 Sensory receptors collect information from the surroundings and send it to the for processing.
 a. lungs b. spinal cord c. nerves d. brain
- 12 The is the organ responsible for hearing.
 a. eye b. ear c. tongue d. mouth

- 13 The system receives and translates information.
 a. digestive b. nervous c. respiratory d. urinary
- 14 Sharp sounds are-pitched sounds.
 a. no b. low c. medium d. high

Q2 Put (✓) or (X):

- 1 Dolphins have a stronger sense of hearing than humans. (✓)
- 2 Bats rely on echolocation to find food. (✓)
- 3 The spinal cord is the main control center in the human body. (X)
- 4 We can differentiate between hot and cold objects using the digestive system. (X)
- 5 Animals that are active at night are called nocturnal animals. (✓)
- 6 Ants can communicate with each other by singing. (X)
- 7 Egyptian jerboas depend on echolocation to find food. (X)
- 8 The brain is the main control center in the human body. (✓)
- 9 We can differentiate between hot and cold objects by the sensory receptors. (✓)
- 10 The scientific idea of a blind person's cane is echolocation. (✓)

Q3 Complete the following sentences:

- 1 The nervous system consists of the brain, spinal cord, and nerves.
- 2 Bats and owls are examples of nocturnal animals.
- 3 Among the organisms that have the ability to locate their prey by echolocation are bats and dolphins.
- 4 The brain is part of the nervous system.
- 5 The brain is like the command for the human body.
- 6 Nerves send(s) messages to the brain.
- 7 Dolphins use echolocation to know the location of their prey.
- 8 The brain processes and interprets data.

Q4

Complete the following sentences using the words between the brackets:

(nerves – echolocation – smelly messages – brain – hearing)

- 1 When the Egyptian jerboa feels danger, the brain sends messages to its legs through the nerves.
- 2 Ants communicate with each other by sending smelly messages.
- 3 Bats can locate their prey using echolocation.
- 4 Sense organs collect information from the surroundings and send it to the brain to be interpreted.
- 5 Humpback whales communicate with each other through hearing.

Q5

Write the scientific term:

- 1 It is the property by which dolphins and bats can locate their prey.
(Echolocation)
- 2 They are animals that are active at night. (Nocturnal animals)
- 3 It is the body system that controls all body functions and nerves are part of it. (Nervous system)
- 4 It is a bird that can turn its head backwards and has a bowl-shaped head with large eyes. (Owl)
- 5 It is the main control unit in the human body. (Brain)
- 6 They are nerves connected directly to the brain. (Eyes nerves)
- 7 It is a property used in blind people canes to help them detect their surroundings. (Echolocation)
- 8 It is the time taken by the body to react to different information, such as danger. (Reaction time – Response time)
- 9 It is the time taken by the body to receive information from the environment. (Reaction time)
- 10 They are organisms that communicate with each other through the sense of smell. (Ants)

Q6 What is meant by:

- Response time

It is the time taken by a living organism's body to respond to danger.

Q7 Mention one function of:

- 1 The brain in the human body.

It is the main control center of the body that translates information and tells the body what to do.

- 2 The spinal cord in the human body.

It carries messages from the brain to body parts and vice versa.

- 3 The nerves in the human body.

They carry messages from the brain to the spinal cord and body parts and vice versa.

- 4 The nervous system in the human body.

It helps the body avoid danger – It gathers information from the environment.

- 5 The cane used by a blind person.

It helps the blind person to walk safely by changing the echo into vibrations that blind person can detect it using touch.

Q8 Mention the similarities between a bat and a blind person cane:

Both of them make echolocation to locate objects:

- They produce high-pitched sounds.
- They depend on echo to locate objects.

Q9 Explain how a bat uses echolocation:

- A bat produces sound waves in the air.
- When the sound waves hit an object, they return back in the form of an echo.
- The bat can detect the echo and locate the object using its sharp hearing sense.

Q10

Choose from column (A) what suits it in column (B):

A

Column (A)	Column (B)
1 The brain	a. carry messages from the brain to the spinal cord and other parts of the body.
2 Spinal cord	b. is the main control center of the body.
3 Nerves	c. is a big nerve that runs through the backbone.

1 b 2 c 3 a

B

Column (A)	Column (B)
1 Bats	a. send smelly messages to communicate.
2 Humpback whales	b. use echolocation to locate their prey.
3 Ants	c. are desert rodents with long hind legs.
4 Egyptian jerboas	d. can sing underwater to communicate with each other.

1 b 2 d 3 a 4 c

Q11

Give reasons for:

- 1 Bats can locate their prey in the dark.

Because they have a super sense of hearing and depend on echolocation.

- 2 The Egyptian mongoose makes sounds.

To communicate with each other to move together and search for food.

- 3 Dolphins can hear different types of sounds.

Because they have a super sense of hearing.

- 4 Animals that live in hot places become active at night.

Because the weather is cool at night, so the prey will be available at night, and they will surprise their prey.

- 5 Humpback whales sing underwater.

To communicate with each other during mating or feeding seasons.

- 6 A blind person can detect his surroundings.

Because a blind person uses a special cane that depends on echolocation and can change echo into vibrations to allow him to detect his surroundings using touch.

- 7 The Egyptian jerboa jumps quickly when it senses danger.

Because it has long hind legs to jump for a long distance and long ears to hear the snake so it can run away quickly.

012

What happens if:

- 1 Owls don't have large ears?

They can't hear the movement of faraway prey.

- 2 Nerves are not part of the human body?

The messages can't be sent between the brain, spinal cord, and body parts and vice versa.

- 3 Animals cannot locate their prey?

They can't hunt the prey and can't get food, so they will die.

- 4 The Egyptian jerboa hears a snake moving towards it?

It jumps (hops) quickly and runs away in less than one second.

- 5 Your hand touches the thorns of a cactus plant?

I move my hand quickly in less than one second.

- 6 The Egyptian jerboa does not have a long leg?

It can't jump long distances to run away quickly.

- 7 The jerboa does not have an ear that is sensitive to sound?

It can't hear the movement of a snake, so it can't jump and run away from danger.

- 8 Humpback whales cannot sing underwater?

They can't communicate with each other.

Concept

1.3

Light and Sight

Evaluation Weeks 6, 7, &

Q1

Choose the correct answer:

- 1 Light is a form of
a. force b. work c. matter d. energy
- 2 Which of the following is an opaque object?
a. Air b. Water c. Wood d. Glass
- 3 When light falls on a mirror, it is
a. absorbed b. refracted c. scattered d. reflected
- 4 Among natural sources of light is the
a. lamp b. moon c. candle d. Sun
- 5 If Hossam wants to make a box to see its contents from the outside, which of the following materials can he use?
a. Cardboard b. Transparent glass
c. Opaque plastic d. Carton
- 6 Light travels in lines.
a. zigzag b. straight c. circular d. curved
- 7 The process of vision occurs as a result of the of light.
a. scattering b. reflection c. absorption d. refraction
- 8 Which of the following materials reflect light best?
a. Wood b. Cloth c. Mirrors d. Rock
- 9 Man uses to communicate.
a. echolocation b. camouflage
c. sight and hearing d. sleeping
- 10 Your eyes use to collect information.
a. sound b. smell c. sound and light d. light
- 11 Travelers use to attract the attention of helicopter pilots to rescue them.
a. sound b. mirrors c. wood d. food
- 12 Writing and reading are ways to communication between
a. plants b. animals c. humans d. ants

- 13 All the following are examples of codes, except
 a. traffic lights b. facial expressions
 c. sleep d. thumbs-up
- 14 Fireflies can communicate with each other through
 a. smell sense b. light c. songs d. smell
- 15 Fireflies are found on trees.
 a. pine b. kapok c. mangrove d. acacia
- 16 Fireflies use their to release flashes.
 a. eyes b. wings c. ears d. head
- 17 Raising the thumb up or down is a type of
 a. codes b. lights c. sound d. energy
- 18 is considered a pattern that have meaning.
 a. Code b. Light c. Sound d. Energy

Q2 Put (✓) or (x):

- 1 Nocturnal animals have larger eyes than humans. (✓)
- 2 Rough objects reflect light better than smooth ones. (✗)
- 3 The moon is not a source of light. (✓)
- 4 The Sun and the moon are sources of light. (✗)
- 5 Objects can be seen due to the absorption of light. (✗)
- 6 Smooth surfaces reflect light better than rough surfaces. (✓)

Q3 Complete the following sentences:

- 1 Fireflies communicate with each other through light/flash patterns.
- 2 Fireflies are found on mangrove trees in Thailand.
- 3 Light is produced as a result of a chemical reaction that occurs inside the bodies of fireflies.
- 4 Fireflies use their sense of sight to communicate.
- 5 Raising the thumb up is a type of code.
- 6 Fireflies use their wings to release flashes of light.
- 7 One example of a code is raising the thumb up.
- 8 Wood is an example of an opaque object.

Q4 Write the scientific term:

- 1 It is the organ affected by light and responsible for vision. (Eye)
- 2 They are materials that allow light to pass through them. (Transparent objects)
- 3 They are objects through which light is emitted. (Sources of light)
- 4 They are materials that we can't see through. (Opaque objects)
- 5 It is a pattern that has a meaning. (Code)
- 6 They can communicate together by flashing (lighting). (Fireflies)
- 7 It includes raising your thumb up or down. (Code)

Q5 What is meant by:

- ☐ Code It is a pattern that has a meaning.

Q6 Answer the following questions:

- 1 Mention two examples of codes used by humans in their daily lives.
Thumb up – Thumb down – Language – Writing – Facial expressions
- 2 Explain how bats communicate with each other.
Bats use sound and echolocation to communicate, as bats produce high-pitched sounds that bounce back to them in the form of echo.
- 3 Mention an example of behavioral adaptation in fireflies.
They change the flash pattern to match the flash pattern of another group to communicate.
- 4 Mention one benefit of the flashes emitted by fireflies.
Fireflies use flashes to communicate to warn other fireflies from predators or to attract a mate.

Q7 Give reasons for:

- 1 The moon is not a source of light.
Because the moon doesn't emit light, but it reflects the sunlight falling on it.
- 2 Fireflies emit a luminous flash.
To communicate together and warn other fireflies from predators or to attract a mate to reproduce.

- 3 Humans sometimes use codes.

To communicate and transmit information.

- 4 Glass is a transparent material.

Because glass allows light to pass through it and objects can be seen through it.

- 5 Wood is an opaque material.

Because wood doesn't allow light to pass through it and objects can't be seen through it.

Q8

What happens if:

- 1 Light falls on a rough surface, such as wood or paper?

Light is reflected in different directions.

- 2 Light falls on a smooth surface, such as a mirror?

Light is reflected in the same direction.

- 3 The backcountry hikers do not have mirrors?

They can't attract the attention of rescue helicopters.

- 4 Codes have no meaning?

The brain can't decode and interpret the meaning

- 5 Fireflies do not emit flashes?

They can't communicate with each other.

They can't warn other fireflies from predators.

They can't attract a mate to reproduce.

سلسلة كتب الاستاذ

Concept

2.1

Starting and Stopping

Evaluation Weeks 9 & 10

Q1

Put (✓) or (X):

- 1 Objects do not move if no force affects them. (✓)
- 2 The body is static when it moves from one place to another. (X)
- 3 The engine of a jet plane is weaker than the engine of a car. (X)
- 4 The movement of planets can be seen in the sky. (X)
- 5 Friction acts in the same direction of the motion of the body. (X)
- 6 If a balanced force acts on a body, it moves. (X)
- 7 Opening the desk drawer is a pulling force. (✓)
- 8 An object moves a greater distance if a greater pushing force is exerted on it. (✓)

Q2

Complete the following sentences:

- 1 The body whose position does not change is in a static state.
- 2 Force causes the movement of static bodies.
- 3 The fastest truck in the world is the Shockwave truck.
- 4 The Shockwave truck is stopped by 3 parachutes.
- 5 Opening the door handle is a pulling force.
- 6 The speeds of trucks differ according to the power and number of engines.
- 7 Kicking the ball is a pushing force, while tightening the hook is a pulling force.
- 8 There are two types of forces: pushing and pulling forces.
- 9 A moving object is acted on by unbalanced forces, while a body at rest is acted on by balanced forces.
- 10 There are two types of forces: balanced and unbalanced.
- 11 An apple falling from a tree is caused by the pulling force of gravity, while kicking a ball is an example of a pushing force.
- 12 When an unbalanced force acts on a body, it moves toward the greater force (changes its position).
- 13 An apple falling from the tree is caused by the force of gravity.

- 14 When a force acts against the direction of motion of an object, its speed **decreases**.
- 15 An object moves when an **unbalanced** force acts on it.

Q3

Write the scientific term:

- 1 It is the change in the place of the body from one place to another. (Motion)
- 2 It is a force that pulls objects down toward the Earth. (Gravity)
- 3 It is the amount of energy required to move an object through the force acting on it. (Work)
- 4 It is a force that arises between the surfaces of two bodies in contact. (Friction force)
- 5 It is the ability to do work. (Energy)

Q4

What is meant by:

- 1 Pushing force
It is a force that you use to move an object away from you.
- 2 Pulling force
It is a force that you use to move an object toward you.
- 3 Movement (Motion)
It is any change in the position of an object relative to a fixed starting point.
- 4 Gravity
It is the force that pulls objects down toward the Earth's center.
- 5 Energy
It is ability to do work or cause a change.
- 6 Force
It is a push or pull that is applied to an object making it change its position.

Q5

Answer the following questions:

- 1 Give an example of an easily seen movement and another that cannot be seen.

We can see a walking person.

We can't see the rotation of Earth around the Sun.

- 2 Give an example of both a pushing force and a pulling force.

Pushing force: Kicking the ball

Pulling force: Gravity pulls objects toward the Earth's center.

- 3 Give an example of an object that is affected by unbalanced forces.

In the tug-of-war game, the rope moves with a greater force when one team pulls the rope with a greater force.

- 4 Mention an example of an object that has balanced forces acting on it.

- You sit on a chair.

- A book on the table

- 5 Mention the state of the body when balanced and other unbalanced forces affect it.

Balanced forces: The object will not move.

Unbalanced forces: The object will move toward the greater force.

- 6 Explain the difference in the distance traveled by two cars of different masses.

The small car will move a longer distance.

The big car will move a shorter distance.

Q6

Give reasons for:

- 1 A body does not move when it is acted upon by balanced forces.

Because balanced forces are equal.

- 2 A cart starts moving when the gases come out of the fire extinguishers.

Because the air of the fire extinguisher moves backwards, so the cart moves forward.

- 3 The speed of a jet plane is greater than the speed of a truck.

Because a jet plane has a more powerful engine than a truck.

- 4 The distance traveled by a car varies according to its mass.
Because when the mass of an object increases, the object covers a short distance and vice versa.
- 5 An object moves when unbalanced forces act on it.
Because unbalanced forces are unequal forces, so the object moves toward the greater force.
- 6 The speed of a car decreases when the brakes are applied.
Due to the friction force between the car tires and the road, which slows down the motion of the car.

Q7

What happens if:

- 1 An object is affected by unbalanced forces?
The body moves toward the greater force.
- 2 An object is affected by balanced forces?
It does not move and stays static. سلسلة
- 3 We increase the number of fire extinguishers on the cart?
The speed of the cart increases and the cart covers a longer distance.
- 4 We kick the ball with a certain force?
The ball moves and changes its position.
- 5 We press the brakes of the car?
The speed of the car decreases until it stops because of the friction force between the car tires and the road.

Concept

2.2

Energy and Motion

Evaluation Weeks 11 & 12

Q1 Put (✓) or (X):

- 1 Kinetic energy is transferred when a moving car collides with another at rest. (✓)
- 2 The kinetic energy of objects increases as their speed increases. (✓)
- 3 A ball at rest on the ground has kinetic energy. (X)
- 4 When a roller coaster reaches the top, it stores kinetic energy. (X)
- 5 When an electric heater is turned on, it produces thermal energy. (✓)
- 6 The energy stored in food is chemical energy. (✓)
- 7 The energy stored in a spring is kinetic energy. (X)
- 8 Electrical energy is converted into light energy in the heater. (X)

Q2 Correct the underlined words:

- 1 A person at the top of a tower has the most kinetic energy. (potential)
- 2 Potential energy is transferred from your foot to the ball when you kick it. (Kinetic)
- 3 The ability to do work or make a change is known as power. (energy)
- 4 Kinetic energy is the energy stored inside the body. (Potential)
- 5 In an electric fan, electrical energy is converted into chemical energy. (kinetic)
- 6 An example of kinetic energy is gravitational energy. (potential)
- 7 An example of potential energy is sound energy. (chemical)
- 8 The gasoline inside a car stores kinetic energy. (chemical)

Q3 Complete the following sentences:

- 1 An object at the top of a hill has no kinetic energy.
- 2 Energy is what affects different objects and makes them change their position.
- 3 The speed of a roller coaster increases as it moves towards the bottom of the ramp.
- 4 Kinetic energy increases as the speed of the object increases.

- 5 The energy used to carry a roller coaster up is electric energy.
- 6 When a skateboarder reaches the top of a hill and stops, his kinetic energy is zero.
- 7 When you push a small box with your foot, energy is transferred from your foot to the box.
- 8 A battery has chemical potential energy.
- 9 As the mass of an object increases, the potential energy increases.
- 10 In a flashlight, chemical energy is converted into light energy.
- 11 As the height of an object increases, the potential energy increases.
- 12 Chemical energy is considered potential energy.
- 13 Light energy is considered kinetic energy.
- 14 The forms of energy are divided into two main types: potential energy and kinetic energy.
- 15 When you clap your hands, kinetic energy is converted into sound energy.
- 16 In an electric fan, electrical energy is converted into kinetic energy.
- 17 The factors affecting kinetic energy are the speed and the mass.

Q4 Write the scientific term:

- 1 It is the energy stored inside objects. (Potential energy)
- 2 It is the energy possessed by an object due to its motion. (Kinetic energy)
- 3 It is the energy that gasoline stores inside the car. (Chemical energy)
- 4 It is an energy that includes light energy. (Kinetic energy)
- 5 It is the force that is affected by the heights of objects. (Gravity)

Q5 What is meant by:

- 1 Energy
It is the ability to do work or make a change.
- 2 Kinetic energy
It is the energy of an object due to its motion.
- 3 Potential energy
It is the amount of energy that is stored in an object due to its position.

Q6 Answer the following questions:

- 1 Mention the type of energy in the following:
 - a. A book on a table. **Gravitational potential energy**
 - b. The energy stored in batteries. **Chemical potential energy**
- 2 Mention one form of kinetic energy.
Movement of sound waves in the air – Movement of light waves in the air
- 3 Mention one form of potential energy.
Gravitational potential energy – Chemical potential energy

Q7 Give reasons for:

- 1 A book on the table has energy.
Because it is placed on a height from the Earth's surface, so it has potential energy.
- 2 The food we eat has energy.
Because it stores chemical energy.
- 3 A car on the road has energy.
Because it has kinetic energy to allow it to move.

Q8 What happens when:

- 1 We turn on the gas oven.
The chemical energy changes into thermal energy.
- 2 We turn on the fan in the house.
The electrical energy changes into kinetic energy.
- 3 We squeeze a spring.
It stores potential energy, and when you leave it, potential energy changes into kinetic energy.

Concept

2.3

Energy and Motion

Evaluation Weeks 13 & 14

Q1

Put (✓) or (X):

- 1 The greater the angle of inclination, the greater the speed of the moving object is. (✓)
- 2 When the speed of a car increases, its kinetic energy decreases. (X)
- 3 When a car stops suddenly, the passengers rush backward. (X)
- 4 The risks resulting from a collision increase with the increase in mass. (✓)
- 5 Mass is one of the factors that affect speed. (✓)
- 6 The direction of movement of an object affects the force of its collision. (✓)
- 7 Energy before collision is different from energy after collision. (X)
- 8 The thermal energy produced by the pendulum is due to the force of gravity. (X)
- 9 The more speed doubles, the greater the kinetic energy. (✓)

Q2

Correct the underlined words:

- 1 The speed decreases by increasing the distance. (time)
- 2 The wrecking ball is a ball of light mass. (heavy)
- 3 The material moves when the collision between two bodies occurs. (energy)
- 4 When the speed of a body increases, the force of the collision decreases. (increases)

Q3

Complete the following sentences:

- 1 A wrecking ball is made of steel.
- 2 The speed increases by increasing the angle of inclination.
- 3 The unit of speed is kilometers/hour or meters/second.
- 4 Energy is transferred when collision occurs.
- 5 A wrecking ball is used in knocking down walls or parts of buildings.
- 6 When a tennis ball hits the racket, we hear a popping sound.
- 7 The kinetic energy of a body increases with increasing its speed.

- 8 The distance traveled by a body is measured in meters or kilometers.
- 9 Kinetic energy increases with the mass and speed.
- 10 Among the security and safety equipment in the car are the seatbelt and airbag.
- 11 Speed depends on two main factors, which are distance and time.
- 12 The stronger force increases the risk during collision.
- 13 When the mass of a body increases, the force of collision increases.
- 14 Fuel consumption increases in fast cars.
- 15 The total energy before the collision is equal to the total energy after the collision.
- 16 The risk of collision increases by increasing the mass and speed.
- 17 Newton's cradle loses energy in the form of sound and thermal energy.

Q4

Write the scientific term:

- 1 It's a physical quantity determined by distance and time. (Speed)
- 2 It's the distance traveled during a unit of time. (Speed)
- 3 It's a very heavy ball used to knock down buildings. (Wrecking ball)
- 4 It is a safety equipment that prevents the body from moving forward when a car crashes. (Seatbelt)
- 5 It occurs when two things bump or crash each other. (Collision)
- 6 It's a tool used to show energy transitions during collision. (Newton's cradle)
- 7 It's an audible energy produced during a collision. (Sound energy)
- 8 It's the energy stored in Newton's cradle when lifting a ball upwards. (Potential energy)

Q5

Answer the following questions:

- 1 Mention a means of safety in the car.
Seat belts – Airbags
- 2 Mention the equation by which the speed of a car can be determined.

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

- 3 Mention the energy transitions in Newton's cradle.

Potential energy changes into kinetic energy.

Part of the kinetic energy changes into sound energy and thermal energy.

- 4 Mention the relationship between energy before collision and energy after collision.

The energy before collision is equal to the energy after collision.

- 5 Mention the relationship between the speed of the body and its kinetic energy.

When the speed increases, kinetic energy increases.

- 6 Mention the relationship between the speed of the body and the force of collision.

When the speed increases, the force of collision increases and causes more damage.

- 7 A car traveled a distance of 200 kilometers in two hours. Calculate its speed.

Speed = Distance ÷ Time = $200 \div 2 = 100$ km/hr.

- 8 Calculate the speed of a car that travels a distance of 500 km every 5 hours.

Speed = Distance ÷ Time = $500 \div 5 = 100$ km/hr.

Q6 Give reasons for:

- 1 A driver uses the seatbelt while driving.

To prevent his body from moving forward when the car stops suddenly.

- 2 A larger body in mass causes more damage in collision.

Because it has more mass, so it has more kinetic energy and more speed, making it cause more damage.

- 3 The airbag is very important in the car.

Because it slows the speed of the driver and it absorbs the energy of collision.

- 4 In a Newton's cradle, energy loss occurs in the form of thermal energy.

Because some of the kinetic energy changes into thermal energy due to the friction between the string and other parts of Newton's cradle.

- 5 The collision increases with increasing the mass.

As the mass increases, its kinetic energy increases and it causes more damage.

Q7

What happens if:

- 1 A ball collides with the tennis bat?

The bat transfers its kinetic energy to the ball, so the ball moves faster and changes its direction.

- 2 The angle of inclination of a moving object increases?

The speed and the kinetic energy of the object increase.

- 3 Two cars moving in the same direction collide?

The collision causes less damage.

- 4 Two cars moving in opposite directions collide?

The collision causes more damage.

- 5 Two bodies collide with each other?

The energy transfers between them and we can hear a pop sound.

- 6 The speed of a body increases? (According to its kinetic energy)

When the speed increases, kinetic energy increases.



سلسلة كتب الأستاذ

حمل الآن

مجاناً وحصرياً

المراجعة رقم (3)

الترم الاول





First term Questions Bank



Question 01

choose the corret answer

unit 1

Bull sharks can survive or live in

- 1 ☐ a fresh water only ☐ b salt water only ☐ c both fresh and salt water

The thick, white fur is a type of adaptation in

- 2 ☐ a panther chameleon ☐ b polar bear ☐ c fennec fox.

Camouflage means that organism

- 3 ☐ a easy to be seen by predators. ☐ b difficult to be seen. ☐ c easy to be seen by prey.

Long roots in Acacia tree is considered as adaptation.

- 4 ☐ a structural ☐ b behavioral ☐ c physiological

An organ that stores undigested food and expels it out from the body is.....

- 5 ☐ a esophagus ☐ b large intestines ☐ c stomach

The gills are located on both sides of the of the fish.

- 6 ☐ a head ☐ b tail ☐ c trunk

Ants communicate with each other using.....

- 7 ☐ a sight ☐ b smell ☐ c touch

Polar bears have a white fur to

- 8 ☐ a live in desert ☐ b see in dark ☐ c hide from predator or their prey

From the example of behavioural adaptation in panther chameleons is...

- 9 ☐ a puff up its body in danger. ☐ b having long and sticky tongue ☐ c having V-shaped feet

Barbary fig has to prevent animals to eat it.

- 10 ☐ a roots ☐ b soft stem ☐ c sharp spines



..... tree grow in salt water.

- (11) (a) Kapok (b) Palm (c) Mangrove

..... destroy the lungs and causes many diseases.

- (12) (a) sleep (b) nutrition (c) pollution

Some messages sent by the nervous system so fast that you are barely aware of them known as

- (13) (a) Heart (b) Brain (c) Reflexes

From natural sources of light

- (14) (a) sun (b) moon (c) candle

Fennec fox has to enable blending in the desert.

- (15) (a) dark colored fur (b) thick, white fur (c) sandy – colored fur

Adaptations help living organisms to

- (16) (a) survive and reproduce (b) extinct (c) die

An organ which mixing food with saliva and crush it with teeth is

- (17) (a) mouth (b) stomach (c) small intestine

Digestive system starts with

- (18) (a) mouth (b) nose (c) anus

Light is a form of

- (19) (a) energy (b) work (c) matter

When light falls on a mirror, it

- (20) (a) reflected (b) refracted (c) scattered

Carbon dioxide isgas to the body, if we don't get rid of.

- (21) (a) beneficial (b) harmful (c) activates

The penguin's feet be warm due to

- (22) (a) blood vessels (b) fats (c) features



- 23 Gills are considered one of the..... adaptations.
 (a) behavioral (b) structural (c) functional
- 24 Panther chameleon changes its color to blend with surrounding environment is known as.....
 (a) echolocation (b) respiration (c) camouflag
- 25 Thegrow in desert.
 (a) Acacia tree (b) Palm tree (c) Water lilies
- 26 Fish breathe gas dissolved in water.
 (a) oxygen (b) carbon dioxide (c) nitrogen
- 27 The time it takes for the body to react to different information(danger) is called the time
 (a) absorption (b) digestion (c) reaction
- 28 In penguin's body, dense feathers and thick layer of fat help penguin to be.....
 (a) warm (b) enable to camouflag (c) cold
- 29 Which of the following is an opaque object?
 (a) wood (b) water (c) air
- 30 Producing poison in Acacia tree is considered as adaptation
 (a) structural (b) behavioral (c) physiological
- 31 The organ that processes the information collected from the eyes is.....
 (a) brain (b) spinal cord (c) nerves
- 32 In fish,carry oxygen to the rest of the body.
 (a) lungs (b) stomach (c) blood vessels
- 33 The leaves in the..... tree changed into needle to prevent it from losing water
 (a) Acacia (b) Kapok (c) Pine
- 34 The..... system collects information about what is happening inside and outside the body.
 (a) nervous (b) digestive (c) respiratory



Humpback whales communicate with each other through.....

- (a) Dancing (b) flashing (c) singing

Sensory receptors collect information from the surroundings and send it to for processing.

- (a) brain (b) spinal cord (c) nerves

A blind person's cane emits to tell him directions.

- (a) smells (b) lights (c) vibrations

The main control center of the body

- (a) nerves (b) brain (c) spinal cord

The travelers use to attract the attention of helicopter pilots to rescue them.

- (a) sound (b) mirrors (c) wood

Writing and reading is one of the ways to communication with

- (a) Plants (b) animals (c) humans

Hossam wants to make a box to see its contents from the outside, which of the following materials will be use?

- (a) Cardboard (b) transparent glass (c) opaque plastic

The process of vision occurs as a result ofof light.

- (a) scattering (b) reflection (c) absorption

Light travels in.....lines.

- (a) zigzag (b) straight (c) circular

Echolocation helps dolphins identify.....

- (a) color (b) location (c) smell

Man uses a sense of to communicate.

- (a) sight (b) hearing (c) sight and hearing

Which of the following materials reflect light best?

- (a) wood (b) cloth (c) mirrors



Each of the following examples of codes except

- (a) traffic lights (b) facial expressions (c) sleep

Feeling hot or cold depends on sensory receptors in.....

- (a) skin (b) eye (c) ear

Your eyes use to collect information.

- (a) light (b) sound (c) sound and light

Penguin's feet have blood vessels that bring up from its feet towards its body

- (a) warm blood (b) cold blood (c) warm water

One of the adaptations that helps the animal to protect itself from enemies

- (a) camouflage (b) extinction (c) digestion

.....is considered as a behavioral adaptation in living organisms

- (a) long ears (b) living in burrows (c) big eyes

.....is considered as a structural adaptation in living organisms

- (a) birds' migration (b) panting (c) brown fur

The following animals are structurally adapted to live in polar regions, except

- (a) penguin (b) fennec fox (c) arctic fox

When a panther chameleon stands on leaves of trees, the color of its scales changes into.....

- (a) white (b) green (c) blue

The fur of fennec fox protects it from.....

- (a) wind (b) rains (c) hot weather

The body of arctic fox covered with

- (a) skin (b) thick fur (c) feathers



- 58 All of the following properties help arctic fox to stay warm, except....
 (a) thick fur coat (b) short ears (c) tan-colored coat
- 59 Rock and wood are materials.
 (a) opaque (b) transparent (c) liquids
- 60 Fennec fox has a tan- colored coat that provides in its environment
 (a) camouflage (b) respiration (c) panting
- 61 One of the structural adaptations of water lily plant is that it has
 (a) long roots (b) sharp spines (c) wide leaves
- 62 passes the food from pharynx to stomach.
 (a) Esophagus (b) Stomach (c) Trachea
- 63 Digestion process begins in the
 (a) stomach (b) esophagus (c) mouth
- 64 The food moves into the stomach through the
 (a) esophagus (b) trachea (c) small intestine
- 65 Crushing the food in your mouth is the function of
 (a) stomach (b) teeth (c) saliva
- 66 The undigested food pass from the small intestine into the
 (a) large intestine. (b) pancreas (c) brain
- 67 Fish extracts oxygen out of the water by
 (a) skin (b) gills (c) lungs
- 68 When exposing to danger, thesystem helps to recognize it and avoid it
 (a) Circulatory (b) nervous (c) respiratory



- 69 Which of the following can turn its head in all directions?
 (a) lizards (b) owls (c) cats
- 70 Bats use their to get information about their surroundings in dark.
 (a) nose (b) tongue (c) ears
- 71 All of the following are components of nervous system, except
 (a) spinal cord (b) heart (c) nerves
- 72 Animals can communicate with each other through.....
 (a) sound and light (b) eating (c) writing
- 73 use echolocation by bouncing high-pitched sounds in the air.
 (a) Bats (b) Dolphins (c) Whales
- 74 The organ that is responsible for the sense of sight is
 (a) ear (b) eye (c) nose
- 75 From transparent objects.....
 (a) metals (b) lens (c) mirror

Question 02

put (true) or (false)

- 1 Penguin's feet don't freeze due to the thick layer of fat ()
- 2 Camouflage helps animals hunting their prey ()
- 3 Exhaled air contains more oxygen gas ()
- 4 The frog lives in ponds and streams ()
- 5 Inhaled air is rich in carbon dioxide ()
- 6 The spinal cord is the main control center in the human body ()
- 7 Nocturnal animals have larger eyes than humans. ()
- 8 Egyptian jerboa depends on echolocation to find food ()
- 9 Fish need clean and pure water to survive ()



- 10 Fish breathe through the lungs ()
- 11 Ants can communicate with each other by singing. ()
- 12 Rough objects reflect light better than smooth ones. ()
- 13 The moon is not a source of light ()
- 14 Frogs can breathe through the lungs ()
- 15 Dolphins have a stronger sense of hearing than humans ()
- 16 The scientific idea of a blind person's cane is echolocation. ()
- 17 Burning forests is one of the positive human activities on the environment ()
- 18 Cutting down forests can cause environmental change ()
- 19 Animals that are active at night are called nocturnal animals ()
- 20 Bats rely on echolocation to find food. ()
- 21 Carbon dioxide gas is expelled from the body during exhalation ()
- 22 We can differentiate between hot and cold objects using the digestive system ()
- 23 The body of penguin is covered by dense fur in order to be warm ()
- 24 The ecosystem can be restored by eliminating pollution ()
- 25 The body of amphibians is covered with a skin that allows water and gas to pass through ()
- 26 Buttress root of the Kapok tree grows upward. ()
- 27 We can differentiate between hot and cold objects by sensory receptors. ()
- 28 Objects can be seen due to the absorption of light ()
- 29 The sun and the moon are sources of light ()
- 30 Smooth surfaces reflect light better than rough surfaces. ()
- 31 Thick white fur is an adaptation in bears that live in polar regions ()
- 32 Speaking, writing are ways to communicate with people. ()
- 33 Black bears have dark fur to hide among trees. ()
- 34 The ears of arctic fox are longer than those of fennec fox ()
- 35 All type of sharks live in fresh water ()
- 36 Living organisms can adapt their environmental conditions through structural adaptation and behavioral adaptation ()
- 37 The behavioral adaptation is a change in the body structure of a living organism to survive. ()



- 38 Mangrove trees adapt to resist the water waves through their long, strong roots. ()
- 39 Plants have structural adaptation only to help them survive and grow in different environments. ()
- 40 One of the structural adaptations of acacia tree is that it has large, wide roots called buttress roots ()
- 41 Hand-shaped leaves of kapok tree is considered as a behavioral adaptation. ()
- 42 The stomach is an important organ in the digestive system ()
- 43 Digestion process begins in the stomach with the help of saliva. ()
- 44 The food passes through the large intestine before it goes into the small intestine ()
- 45 We eat food to obtain energy. ()
- 46 Esophagus is an important organ in the respiratory system ()
- 47 The lungs are important organ in the respiratory system ()
- 48 The diaphragm is an important organ in the digestive system ()
- 49 Amphibians include frogs and salamanders ()
- 50 The sense of hearing of dolphin is stronger than human ()
- 51 Your sense of hearing allows you to see the light of flashlight ()
- 52 The heart is an important organ in the nervous system ()
- 53 The brain responsible for processing information ()
- 54 Bats use their sense of smell to avoid dangers. ()
- 55 Whales can communicate with each other by using songs. ()
- 56 Light travels in straight lines. ()
- 57 Both human and animal need light to see. ()
- 58 Wood is a transparent object that allows light to pass through it ()

Question 03

complete

- 1 The nervous system consists of, and
- 2 Examples of nocturnal organisms includeand
- 3 The brain is part of thesystem.
- 4 Theis like the command for human body.



- 5send(s) messages to the brain.
- 6 Man uses codes to transfer
- 7 Amphibians breathe usingand
- 8 One of the ways of communication in the human is
- 9 Some of the changes that affect ecosystems areand
- 10 Fireflies use the sense ofto communicate with each other.
- 11 The muscle that helps in respiration process is
- 12 To communicate by sight, we need
- 13 In order to translate the code, themust distinguish it.
- 14 An organ that pushes the food to the stomach is
- 15 One example of code is
- 16 During exhalationgas is released while inhalationgas is interred.
- 17 Among the organisms that have the ability to locate their prey by echolocationand
- 18 The bull shark lives in
- 19 Fireflies communicate with each other through
- 20 Fish extract gasdissolved in water and humans use this gas during theprocess.
- 21 Fireflies are found ontrees in Thailand.
- 22helps Polar animals to hide in the snow.
- 23 Light is produced as a result ofoccurs inside the body of the fireflies.
- 24 The diaphragm moves upward duringand downward during the process of
- 25 Raising the thumb – up is a type of
- 26help the kapok tree to hold in the soil.



- 27 Fireflies use the sense ofto communicate.
- 28 Fireflies are usedto release flashes of light.
- 29 The pharynx is an organ ofsystem while the lungs are organs of thesystem.
- 30is from the organs of the digestive system.
- 31is from the organs of the Respiratory system.
- 32processes and interprets data.
- 33 The gills in the fish are considered asadaptation.
- 34is an example of an opaque object.
- 35 Dolphins useto know the location of its prey.
- 36 Animals that can live both in water and on land are called
- 37 The penguin's body can keep warm through a thick layer of and dense
- 38 Type of adaptation that some animals use to hide from their predators or preys is known as
- 39 Forest bears haveorcolored fur, while polar bears havecolored fur.
- 40 The long ears of the fennec fox are example ofadaptation.
- 41 Eyes of chameleon move independently of each other; this is considered asadaptation.
- 42 Short ears of arctic fox is consideredadaptation, while its staying in burrows to be warm is consideredadaptation.
- 43tree has taproot to search for water.
- 44tree has long and strong roots to resist water waves.
- 45 The hand-shaped leaves of kapok tree allowto flow through them gently.
- 46 The leaves of water lilies are wide in order toon the water surface and to absorb a large amount of
- 47 Air enters and exits the human body throughsystem.
- 48 During inhalation, air travels down from your throat to your lungs through
- 49 Humans useto breathe, while fish useto breathe.



- 50 Fish breathgas which dissolved in water.
- 51 Fish haveto breathe.
- 52 Starred agama lizard is a, while frog is an
- 53 The dolphin has sharp sense of
- 54andare from sharp senses in owls.
- 55is the main control center in the body
- 56 Blind people can locate his friend bysense.
- 57 Humpback whales communicate with each other with theirsenses.
- 58ants are responsible for sending smelly message when amount of food decreases
- 59 The form energy that can be seen isenergy.
- 60 Light travels inlines.
- 61is the organ that we can use to receive light.
- 62 Fireflies use the sense ofto communicate with each other.
- 63 Fireflies communicate with each other by producing a
- 64is an opaque object.
- 65is considered an example for transparent materials.
- 66 water ismaterials and you can see things through them

Question 04

write scientific term for each of the following

- 1 Characteristics that help living organisms survive and reproduce in the ecosystem. ()
- 2 A type of adaptation that help the animals to hide from a predator or sneak its prey. ()
- 3 A change in the structure of the animal's body ()
- 4 A process in which the lungs expand and fill with air. ()



- 5 The system responsible for get rid of harmful air from body ()
- 6 The organs that work together. ()
- 7 Animals that can live on both land and water ()
- 8 The continuous decrease in the number of individuals of an organism until the death of all its members ()
- 9 Organs in humans that work to extract oxygen from air ()
- 10 Special organs in fish that allow them to extract oxygen dissolved in water and remove carbon dioxide ()
- 11 Pollution caused by exhaust from cars and factories. ()
- 12 A bird that can turn its head backwards and has a bowl-shaped head with large eyes. ()
- 13 The property by which dolphins and bats can locate their prey. ()
- 14 Nerves that connect directly to the brain. ()
- 15 The body system that controls all body functions and nerves are part of it. ()
- 16 The time it takes for the body to react to different information such as danger. ()
- 17 Animals that are active at night look for food ()
- 18 A property used in a blind people cane to help them detect their surroundings. ()
- 19 Organisms communicate with each other through the sense of smell ()
- 20 A pattern that has meaning ()
- 21 Animals communicate with each other by flashing (lighting) ()
- 22 Raise your thumb up or down ()
- 23 The main control center in the human body ()
- 24 A tree lives in savannah forest ()
- 25 The main control unit in the human body. ()
- 26 The organ affected by light and responsible for vision. ()
- 27 Materials that allow light to pass through them. ()
- 28 Objects through which light is emitted. ()
- 29 Materials that cannot be seen through. ()



- 30 Trees that grow in Amazon rainforest. ()
- 31 A tree that can live, survive and securely in water. ()
- 32 It covers the body of some types of bears to blend in with snow and keeps their bodies warm. ()
- 33 A reptile that its body is covered by colored scales and has V-shaped feet. ()
- 34 A type of foxes has a tan-colored fur. ()
- 35 It covers the body of some bears to keep warm and blend in snow. ()
- 36 The fox that has extra-large ears to lose its heat ()
- 37 A structural adaptation that fixes the kapok tree in soggy soil and support its trunk ()
- 38 It is a tree that is found in snow and has a triangle shape. ()
- 39 An organ through which solid wastes of digestion leave the body. ()
- 40 A process of breaking down food into smaller parts that the body cells absorb and use to get energy and grow. ()
- 41 A large muscle that contracts during breathing in and relaxes during breathing out ()
- 42 It allows the air to pass from the nose to the trachea. ()
- 43 A gas presents in air and water, and is very important for breathing process ()
- 44 A group of ants which is responsible for sending smelly messages when there is a shortage of food. ()
- 45 Ants send a smelly message to alert the ants where to find the food. ()
- 46 A tool used by the man works as the eyes of fishing cats at night. ()
- 47 A body that appears lighted in the sky, but it is not considered as a source of light. ()
- 48 The object which allows light to pass through it ()
- 49 It is a code that use symbols in a pattern to give a specific meaning according to the arrangement of letter in a word ()
- 50 It is a code in form of sounds used to transfer information ()



Question 05

What is meant by each of the following:

1- camouflage.

2- Response time.

3 - Code

Question 06

cross the odd word

- ① Penguin - Fennec fox - Polar bear - Arctic fox
- ② Penguin - Polar bear - Snake - Arctic Fox.
- ③ Nose - Throat - Trachea - Anus.
- ④ Nose - Trachea - Stomach - Lungs.
- ⑤ Fire - The moon - The Sun - The light bulb.
- ⑥ Wood. Glass cup-Book-Wall

Question 07

Mention one function of:

Nerves in the human body.

The spinal cord in the human body.

The brain in the human body



Nerves in the human body.

The nervous system in the human body.

The cane used by a blind person.

Question 08

Give reason

- 1 Fennec fox has sandy-colored fur
- 2 Penguin covered with dense feathers
- 3 Fennec fox has extra-large ears.
- 4 Pine tree has a triangular shape.
- 5 Water lilies have wide leaves.
- 6 The Egyptian mongoose makes sounds.
- 7 Humans and fish are similar in some characteristics.
- 8 Humpback whales sing underwater.
- 9 Palm trees have long and strong roots.
- 10 Animals don't eat Acacia tree leaves.



- 11 Barbary fig has spiny leaves.
.....
- 12 Kapok tree stay upright in soggy soil.
.....
- 13 Fish die when they leave the water.
.....
- 14 Humans must plant forests that they cut before.
.....
- 15 Amphibians can live both in water and on land.
.....
- 16 Bats can locate their prey in the dark.
.....
- 17 Dolphins can hear different types of sounds.
.....
- 18 Animals that live in hot places become active at night.
.....
- 19 A blind persons can detect their surroundings.
.....
- 20 The moon is not a source of light.
.....
- 21 The Egyptian jerboa jumps quickly when it senses danger.
.....
- 22 Fireflies emit a luminous flash.
.....
- 23 Humans sometimes use codes.
.....
- 24 Codes are very important in human life.
.....



- 25 Glass is a transparent material.
.....
- 26 The polar bear has thick white fur.
.....
- 27 Panther chameleon has V-shaped feet and a long tail.
.....
- 28 Mangrove tree has long and strong roots.
.....
- 29 Kapok tree has hand-shaped leaves
.....
- 30 The body of chameleon is covered with colored scales.
.....
- 31 A mirror can reflect light better than a painted surface.
.....
- 32 The inhaled air differs from the exhaled air.
.....
- 33 Gills are unique structural adaptation in fish.
.....
- 34 Owls can hunt during the night
.....
- 35 We can see objects when light fall on it
.....
- 36 A shadow is formed when light falls on an opaque object.
.....
- 37 Fishing cat eyes glow in the dark
.....
- 38 Sun is considered a source of light
.....



Question 09

what happens

- 1 Owls don't have large ears.
.....
- 2 The Egyptian jerboa hears a snake moving towards it.
.....
- 3 Your hand is touching the thorns of a cactus plant.
.....
- 4 The Egyptian jerboa does not have a long leg.
.....
- 5 If human don't chew the food.
.....
- 6 Forest trees are cut down.
.....
- 7 The arctic fox doesn't have thick white fur.
.....
- 8 The panther chameleon has no V- shaped feet.
.....
- 9 Fennec fox has a short ear.
.....
- 10 If you stop breathing for a long time.
.....
- 11 Fireflies did not emit flashes.
.....
- 12 Palm trees have not thick and strong roots.
.....
- 13 Many communities are built and agriculture is neglected.
.....
- 14 Light falls on a rough surface such as wood or paper.
.....



- 15 The jerboa does not have an ear that is sensitive to sound.
.....
- 16 Nerves are not part of the human body.
.....
- 17 The codes have no meaning.
.....
- 18 The small intestine is not part of the digestive system.
.....
- 19 Humans do not have lungs.
.....
- 20 Acacia trees don't produce a poison.
.....
- 21 Animals cannot locate their prey.
.....
- 22 The backcountry hikers do not have mirrors.
.....
- 23 Saliva is not secreted during digestion.
.....
- 24 Human lungs are replaced by gills.
.....
- 25 Light falls on a smooth surface such as a mirror.
.....
- 26 Humpback whales cannot sing underwater.
.....
- 27 living organisms cannot adapt with environmental or ecosystem change
.....



- 28 The polar bear has thin fur instead of its thick fur
.....
- 29 Diaphragm moves up in respiration process (during exhalation)
.....
- 30 The diaphragm muscle contracts and moves down.
.....
- 31 When the light falls on a smooth and shiny surface as mirror
.....
- 32 The traffic light becomes red while you are going to cross road
.....
- 33 Light fall on transparent object as glass window
.....
- 34 When firefly wants to attract a mate to reproduce?
.....

Question 10

Determine the type of adaptation in the following:

- 1 Panther chameleons have V-shaped feet
- 2 Fennec fox lives in burrows to stay cool.
- 3 The tick, white fur in polar bears.
- 4 Panther chameleon puffs up its body to look fierce
- 5 Thick, white fur in the polar bear.
- 6 Fennec fox lives in burrows.
- 7 Bull shark hunts in the day as well as the night.

Question 11

Give one example of the following:

Behavioral adaptation of living organisms.

.....

- Structural adaptation of living organisms.

.....



- The animals that enable to hide in their environment (ecosystem)

- Behavioral adaptation in Acacia trees.

- Behavioral adaptation in kapok trees.

- Structural adaption in water lilies.

Question 01

choose the corret answer

unit 2

- 1 When an object is in motion, this means that itschanges
 (a) color (b) shape (c) size (d) position
- 2 When you move something towards you, this represents.....
 (a) pushing force (b) light energy (c) pulling force (d) sound energy
- 3 Push or pull actions are considered as types of
 (a) force (b) device (c) energy (d) adaptation
- 4 Which of the following will cause an object to move?
 (a) balanced forces (b) unbalanced forces (c) sound energy (d) light energy
- 5 All of the following are examples of motion, except
 (a) running person (b) ball travelling through air (c) flying bird (d) sleeping dog
- 6 When you throw a ball in the air, the gravity will make it move
 (a) upward (b) forward (c) downward (d) backward
- 7 The force that occurs when an object rubs against another object is called.....
 (a) friction (b) gravity (c) push (d) pull
- 8 When the force acting on a moving body increases, its speed will
 (a) increase (b) decrease (c) remain constant (d) stop



- 9 The force that slows down the speed is called
- (a) push (b) gravity (c) friction (d) pull
- 10 There is a force between the car tires and the road that acts to decrease car's speed gradually.
- (a) gravity (b) pulling (c) pushing (d) friction
- 11 is the ability to do work or make a change.
- (a) Speed (b) Work (c) Energy (d) Displacement
- 12 The form of energy that can be seen is energy.
- (a) thermal (b) electrical (c) sound (d) light
- 13 In the electric lamp, electrical energy is changed into energy
- (a) sound (b) chemical (c) light (d) potential
- 14 The energy that is stored in an object due to its position, is known as energy.
- (a) kinetic (b) potential (c) electrical (d) chemical
- 15 The energy gained by a ball when it falls from above is energy
- (a) Potential (b) kinetic (c) light (d) chemical
- 16 Electric heater produces energy.
- (a) kinetic (b) thermal (c) electric (d) chemical
- 17 Chemical energy stored in batteries is considered a form of energy
- (a) potential (b) kinetic (c) heat (d) light
- 18 Chemical energy can be stored in
- (a) food only (b) battery only (c) television and food (d) food and battery
- 19 The force that causes an object to move a distance is called
- (a) work (b) potential (c) gravity (d) pull
- 20 A ball at the top of the hill stores energy
- (a) potential (b) sound (c) kinetic (d) heat
- 21 How can we calculate the speed of an object?
- (a) $\text{distance} \div \text{time}$ (b) $\text{distance} + \text{time}$ (c) $\text{distance} \times \text{time}$ (d) $\text{distance} - \text{time}$
- 22 Which of the following is a measuring unit of speed?
- (a) hr/km (b) sec/m (c) kg/sec (d) m/sec

The airbag is made of.....



- 23 a carton b nylon c rubber d cotton
- 24 Kinetic energy isn't affected by the
a mass b speed c color d weight
- 25 Speed is a measurement of how something is moving.
a long b fast c tall d much
- 26 Collisions usually produceenergy
a solar b sound c gravitational d chemical
- 27 When a car that moves forward stops suddenly, the passengers move ...
a backward b forward c upward d downward

Question 02

put (true) or (false)

- 1 The object moves a greater distance if a greater pushing force is exerted on it. ()
- 2 The body is static when it moves from one place to another. ()
- 3 Friction acts in the same direction of the motion of the body. ()
- 4 The movement of the planets can be seen in the sky. ()
- 5 When a roller coaster reaches the top, it stores kinetic energy. ()
- 6 If a balanced force acts on the body, it moves. ()
- 7 Opening the desk drawer is a pulling force ()
- 8 The engine of the jet plane is weaker than the engine of the car ()
- 9 Kinetic energy is transferred when a moving car collides with a rest one. ()
- 10 A ball at rest on the ground has kinetic energy ()
- 11 Objects do not move if no force affects them ()
- 12 The kinetic energy of objects increases as their speed increases. ()
- 13 Electrical energy is converted into light energy in the heater ()
- 14 The energy stored in a spring is kinetic energy. ()
- 15 The energy stored in food is chemical energy ()
- 16 When an electric heater is turned on, it produces thermal energy ()



- 17 The kinetic energy of objects increases as their speed increases. ()
- 18 The greater the angle of inclination, the greater the speed of the moving object. ()
- 19 When the speed of the car increases, its kinetic energy decreases ()
- 20 When the car stops once, the passengers rush back. ()
- 21 Mass is one of the factors that affect speed. ()
- 22 Air resists the motion of a car. ()
- 23 Pushing force of gravity makes the ball falls down after throwing it in air ()
- 24 The balanced forces cause the object to move. ()
- 25 Hitting a tennis ball needs a pulling force ()
- 26 When a pen falls down from your hand, the acting force is gravity ()
- 27 Unbalanced forces cause a change in the object position ()
- 28 Objects fall down to the Earth due to friction force. ()
- 29 When a car crashes into a wall, it will not stop. ()
- 30 When a car runs out of fuel on a flat road, its speed increases gradually until it stops. ()
- 31 Any moving object has kinetic energy ()
- 32 When the roller coaster slides down fast, its kinetic energy increases ()
- 33 The moving objects only have energy, while the objects that don't move have no energy ()
- 34 When you kick a ball, kinetic energy is produced ()
- 35 As the height of an object from the Earth's surface increases, its potential energy decreases ()
- 36 In electric fan, kinetic energy is converted into electric energy ()
- 37 We can see the movement of electricity through a wire. ()
- 38 From the examples of kinetic energy, the bird which stays in its nest. ()
- 39 Energy can be changed from one form to another. ()
- 40 Potential energy is the energy of moving body. ()



- 41 Thermal energy is an example of kinetic energy. ()
- 42 Energy is the ability to do work. ()
- 43 Seatbelt is one of safety equipment in cars. ()
- 44 After collision, the air bag deflates the same speed as it inflates. ()
- 45 Drivers should drive as fast as possible to avoid accidents. ()
- 46 The high-speed moving objects face less dangers than the slower objects. ()
- 47 The mass of a moving body affects its speed. ()
- 48 As the speed increases, the amount of fuel used decreases. ()
- 49 We can measure the covered distance in kilometer unit. ()
- 50 Kilogram is the measuring unit of speed ()
- 51 Speed and mass are factor that affect the kinetic energy of a moving object ()

Question 03

complete

- 1 The body whose position does not change is in astate.
- 2causes the movement of static bodies.
- 3 The fastest truck in the world is thetruck.
- 4 The speed of the roller coaster increases as it moves towards of the ramp.
- 5 Kicking the ball isforce while tightening the hook isforce.
- 6 The energy used to move the roller coaster up is
- 7 The SHOCKWAVE truck is stopped by
- 8 When you clap your hands,energy is converted intoenergy.
- 9 Opening the door handle isforce.
- 10 The speed of trucks different according to



- 11 There are two types of forceandforce.
- 12 Theenergy increases as the speed of the object increases.
- 13 A moving object is acted byforces while the body at rest is acted byforces
- 14 As the speed increases, the amount ofenergy of the body increases.
- 15 When an unbalanced force acts on a body, it will
- 16 The apple falling from the tree is aforce.
- 17 Light energy is considered asenergy.
- 18 When a force acts against the direction of motion of an object, its speed
- 19 Factors affecting kinetic energyand
- 20 An object at the top of a hill has noenergy.
- 21 In an electric fan,energy is converted intoenergy.
- 22 As the mass of an object increases, theenergy increases.
- 23 Energy is what affects different objects and makes them change its
- 24 When a skateboarder reaches the top of the hill and stops, his kinetic energy is
- 25 Chemical energy is considered asenergy.
- 26 Thehas chemical potential.
- 27 When you push a small box with your foot, energy is transferred fromto
- 28 In a flashlightenergy is converted intoenergy.
- 29 As the height of the object increases,energy increases.
- 30 During a car crash, theis inflated with a gas to provide a soft cushion.
- 31is the ability to do work.



- 32 If the mass of an object decreases this mean that its kinetic energy
- 33 In gas oven,energy changes intoenergy.
- 34 In electric heater,energy changes intoenergy.
- 35 In electric bell, electrical energy changes intoenergy.
- 36 The energy that is stored in an object is calledenergy.
- 37 Airbags absorbs theof the car during collision.
- 38 When objects collide with each other,is transferred between them.
- 39is a safety equipment that is used to prevent car passengers from moving forward when the car stops suddenly.
- 40 When the speed of an object increases, its kinetic energy
- 41 The wrecking ball is made of
- 42 From the security and safety equipment in the carand
- 43 The unit of speed is
- 44 Energy is transferred whenoccurs.
- 45 The wrecking ball is used in
- 46 When the tennis ball hits the racket, we hear
- 47 The kinetic energy of the body increases with increasing.....
- 48 The distance travelled by the body is measured in
- 49 Kinetic energy increases withand
- 50 Speed depends on two main factorsand

Question 04

write scientific term for each of the following

- 1 The ability to do work. ()
- 2 Energy stored in an object due to its position ()
- 3 The energy that the object gains due to its motion ()



- 4 Change the place of the body from one place to another ()
- 5 Forces that pull objects down toward the Earth ()
- 6 A force that arises between the surfaces of two bodies in contact ()
- 7 The force that is affected by the height of objects. ()
- 8 A force that causes objects move toward you. ()
- 9 The force that makes objects move away from you. ()
- 10 A change in the position of an object relative to a fixed starting point ()
- 11 The energy that gasoline stores inside the car ()
- 12 Energy that includes light energy. ()
- 13 A physical quantity determined by distance and time. ()
- 14 The distance travelled during the unit of time. ()
- 15 A very heavy ball used to knock down building ()
- 16 It is a safety equipment that prevents the body from moving forward when a car crashes ()
- 17 One of the fastest and most powerful trucks in the world ()
- 18 It is a push or pull that is applied to an object cause it to change its position ()
- 19 It is a force that causes an object to move a distance ()
- 20 The form of energy that increases when the speed of an object increases ()
- 21 The process in which two objects or more crash into each other and includes an energy. ()
- 22 Safety equipment provide a soft cushion, when it inflates automatically with a gas during collision. ()
- 23 A heavy steel ball that swings on a cable and it is used in destruction of buildings parts. ()

Question 05

What is meant by each of the following:

- 1 Force



- 2 Pushing force
- 3 Pulling force
- 4 Energy
- 5 Potential energy
- 6 Kinetic energy
- 7 Movement
- 8 Gravity

Question 05

Give Reason for each of the following

- 1 The driver uses the seat belt while driving.
.....
- 2 The larger body in the mass does more damage when collision.
.....
- 3 The airbag is very important in the car.
.....
- 4 The distance traveled by a car varies with its mass.
.....
- 5 The body does not move when it is exerted by balanced forces.
.....
- 6 The car starts moving when the gases come out of the fire extinguishers.
.....
- 7 The speed of the jet plane is greater than the speed of the truck.
.....
- 8 An object moves when an unbalanced force acts on it.
.....



- 9 Pressing the brakes of the car.
.....
- 10 The speed of a car decreases when the brakes are applied.
.....
- 11 The book on the table has energy.
.....
- 12 The food we eat has energy.
.....
- 13 The shockwave truck is faster than the normal truck
.....
- 14 Engineers use parachutes in shockwave truck
.....
- 15 If you let a pen out of your hand, it falls to the ground
.....
- 16 When you stop pedalling during movement of your bicycle, it slows down until it stop
.....
- 17 Electric lamp produces different forms of energy
.....
- 18 Airbag deflates after seconds of collision.
.....

Question 06

What happens if ?

- 1 Affected the body of unbalanced forces.
.....
- 2 Increase the number of fire extinguishers on the car.
.....
- 3 Affected the body of balanced forces.
.....



- 4 Kicking the ball with a certain force.
.....
- 5 Turning on the gas oven.
.....
- 6 Turning on the fan in the house.
.....
- 7 The ball collides with the tennis racket.
.....
- 8 Two body collide with each other.
.....
- 9 Increase the angle of inclination of the moving object.
.....
- 10 The shockwave driver opens the parachutes
.....
- 11 You let your toy out of your hand
.....
- 12 A car runs of fuel on a flat road
.....
- 13 A roller coaster moves from up to down
.....
- 14 You operate a washing machine
.....
- 15 You switch on an electric lamp
.....
- 16 The speed of a car increases. (according to its kinetic energy).
.....
- 17 When the mass of a moving body increases, as it moves down wards along a ramp. (According to the kinetic energy)
.....



Question 08

Answer the following questions

1-Give an example of an easily seen movement and another that cannot be seen.

.....

2- Give an example of pushing and pulling force.

.....

3- Give an example of an object that is affected by unbalanced force

.....

4- Mention an example of an object that has balanced forces acting on it.

.....

5- Mention one form of potential energy.

.....

6- Mention the difference between potential and kinetic energy.

.....

7- Mention one form of kinetic energy.

.....

8- Mention the state of the body when balanced and other unbalanced forces affect it.

.....

9- Explain the difference in the distance traveled by two cars of different masses.

.....

10- Arrange the energy transformations that occur in a roller coaster.

.....

11. Mention some of the safety equipment in the car?

.....

12. Mention the equation by which the speed of a car can be determined.

.....

Calculate the speed of a bicycle moving a distance of 200 meters in 5 sec

.....

13. A car traveled a distance of 200 kilometers in two hours, calculate the speed

.....

جميع أسئلة الشيت أسئلة رسميه لامتحانات المحافظات و تشمل اسئله التقييمات من الاسبوع الاول للاسبوع ال 13





First term Questions Bank



Question 01

choose the corret answer

unit 1

Bull sharks can survive or live in

- 1 ☐ a fresh water only ☐ b salt water only ☐ c both fresh and salt water

The thick, white fur is a type of adaptation in

- 2 ☐ a panther chameleon ☐ b polar bear ☐ c fennec fox.

Camouflage means that organism

- 3 ☐ a easy to be seen by predators. ☐ b difficult to be seen. ☐ c easy to be seen by prey.

Long roots in Acacia tree is considered as adaptation.

- 4 ☐ a structural ☐ b behavioral ☐ c physiological

An organ that stores undigested food and expels it out from the body is.....

- 5 ☐ a esophagus ☐ b large intestines ☐ c stomach

The gills are located on both sides of the of the fish.

- 6 ☐ a head ☐ b tail ☐ c trunk

Ants communicate with each other using.....

- 7 ☐ a sight ☐ b smell ☐ c touch

Polar bears have a white fur to

- 8 ☐ a live in desert ☐ b see in dark ☐ c hide from predator or their prey

From the example of behavioural adaptation in panther chameleons is...

- 9 ☐ a puff up its body in danger. ☐ b having long and sticky tongue ☐ c having V-shaped feet

Barbary fig has to prevent animals to eat it.

- 10 ☐ a roots ☐ b soft stem ☐ c sharp spines



..... tree grow in salt water.

- (11) (a) Kapok (b) Palm (c) Mangrove

..... destroy the lungs and causes many diseases.

- (12) (a) sleep (b) nutrition (c) pollution

Some messages sent by the nervous system so fast that you are barely aware of them known as

- (13) (a) Heart (b) Brain (c) Reflexes

From natural sources of light

- (14) (a) sun (b) moon (c) candle

Fennec fox has to enable blending in the desert.

- (15) (a) dark colored fur (b) thick, white fur (c) sandy – colored fur

Adaptations help living organisms to

- (16) (a) survive and reproduce (b) extinct (c) die

An organ which mixing food with saliva and crush it with teeth is

- (17) (a) mouth (b) stomach (c) small intestine

Digestive system starts with

- (18) (a) mouth (b) nose (c) anus

Light is a form of

- (19) (a) energy (b) work (c) matter

When light falls on a mirror, it

- (20) (a) reflected (b) refracted (c) scattered

Carbon dioxide isgas to the body, if we don't get rid of.

- (21) (a) beneficial (b) harmful (c) activates

The penguin's feet be warm due to

- (22) (a) blood vessels (b) fats (c) features



- 23 Gills are considered one of the..... adaptations.
 (a) behavioral (b) structural (c) functional
- 24 Panther chameleon changes its color to blend with surrounding environment is known as.....
 (a) echolocation (b) respiration (c) camouflage
- 25 Thegrow in desert.
 (a) Acacia tree (b) Palm tree (c) Water lilies
- 26 Fish breathe gas dissolved in water.
 (a) oxygen (b) carbon dioxide (c) nitrogen
- 27 The time it takes for the body to react to different information(danger) is called the time
 (a) absorption (b) digestion (c) reaction
- 28 In penguin's body, dense feathers and thick layer of fat help penguin to be.....
 (a) warm (b) enable to camouflage (c) cold
- 29 Which of the following is an opaque object?
 (a) wood (b) water (c) air
- 30 Producing poison in Acacia tree is considered as adaptation
 (a) structural (b) behavioral (c) physiological
- 31 The organ that processes the information collected from the eyes is.....
 (a) brain (b) spinal cord (c) nerves
- 32 In fish,carry oxygen to the rest of the body.
 (a) lungs (b) stomach (c) blood vessels
- 33 The leaves in the..... tree changed into needle to prevent it from losing water
 (a) Acacia (b) Kapok (c) Pine
- 34 The..... system collects information about what is happening inside and outside the body.
 (a) nervous (b) digestive (c) respiratory



Humpback whales communicate with each other through.....

- (a) Dancing (b) flashing (c) singing

Sensory receptors collect information from the surroundings and send it to for processing.

- (a) brain (b) spinal cord (c) nerves

A blind person's cane emits to tell him directions.

- (a) smells (b) lights (c) vibrations

The main control center of the body

- (a) nerves (b) brain (c) spinal cord

The travelers use to attract the attention of helicopter pilots to rescue them.

- (a) sound (b) mirrors (c) wood

Writing and reading is one of the ways to communication with

- (a) Plants (b) animals (c) humans

Hossam wants to make a box to see its contents from the outside, which of the following materials will be use?

- (a) Cardboard (b) transparent glass (c) opaque plastic

The process of vision occurs as a result ofof light.

- (a) scattering (b) reflection (c) absorption

Light travels in.....lines.

- (a) zigzag (b) straight (c) circular

Echolocation helps dolphins identify.....

- (a) color (b) location (c) smell

Man uses a sense of to communicate.

- (a) sight (b) hearing (c) sight and hearing

Which of the following materials reflect light best?

- (a) wood (b) cloth (c) mirrors



Each of the following examples of codes except

- (a) traffic lights (b) facial expressions (c) sleep

Feeling hot or cold depends on sensory receptors in.....

- (a) skin (b) eye (c) ear

Your eyes use to collect information.

- (a) light (b) sound (c) sound and light

Penguin's feet have blood vessels that bring up from its feet towards its body

- (a) warm blood (b) cold blood (c) warm water

One of the adaptations that helps the animal to protect itself from enemies

- (a) camouflage (b) extinction (c) digestion

.....is considered as a behavioral adaptation in living organisms

- (a) long ears (b) living in burrows (c) big eyes

.....is considered as a structural adaptation in living organisms

- (a) birds' migration (b) panting (c) brown fur

The following animals are structurally adapted to live in polar regions, except

- (a) penguin (b) fennec fox (c) arctic fox

When a panther chameleon stands on leaves of trees, the color of its scales changes into.....

- (a) white (b) green (c) blue

The fur of fennec fox protects it from.....

- (a) wind (b) rains (c) hot weather

The body of arctic fox covered with

- (a) skin (b) thick fur (c) feathers



- 58 All of the following properties help arctic fox to stay warm, except....
 (a) thick fur coat (b) short ears (c) tan-colored coat
- 59 Rock and wood are materials.
 (a) opaque (b) transparent (c) liquids
- 60 Fennec fox has a tan- colored coat that provides in its environment
 (a) camouflage (b) respiration (c) panting
- 61 One of the structural adaptations of water lily plant is that it has
 (a) long roots (b) sharp spines (c) wide leaves
- 62 passes the food from pharynx to stomach.
 (a) Esophagus (b) Stomach (c) Trachea
- 63 Digestion process begins in the
 (a) stomach (b) esophagus (c) mouth
- 64 The food moves into the stomach through the
 (a) esophagus (b) trachea (c) small intestine
- 65 Crushing the food in your mouth is the function of
 (a) stomach (b) teeth (c) saliva
- 66 The undigested food pass from the small intestine into the
 (a) large intestine. (b) pancreas (c) brain
- 67 Fish extracts oxygen out of the water by
 (a) skin (b) gills (c) lungs
- 68 When exposing to danger, thesystem helps to recognize it and avoid it
 (a) Circulatory (b) nervous (c) respiratory



- 69 Which of the following can turn its head in all directions?
 (a) lizards (b) owls (c) cats
- 70 Bats use their to get information about their surroundings in dark.
 (a) nose (b) tongue (c) ears
- 71 All of the following are components of nervous system, except
 (a) spinal cord (b) heart (c) nerves
- 72 Animals can communicate with each other through.....
 (a) sound and light (b) eating (c) writing
- 73 use echolocation by bouncing high-pitched sounds in the air.
 (a) Bats (b) Dolphins (c) Whales
- 74 The organ that is responsible for the sense of sight is
 (a) ear (b) eye (c) nose
- 75 From transparent objects.....
 (a) metals (b) lens (c) mirror

Question 02

put (true) or (false)

- 1 Penguin's feet don't freeze due to the thick layer of fat
- 2 Camouflage helps animals hunting their prey
- 3 Exhaled air contains more oxygen gas
- 4 The frog lives in ponds and streams
- 5 Inhaled air is rich in carbon dioxide
- 6 The spinal cord is the main control center in the human body
- 7 Nocturnal animals have larger eyes than humans.
- 8 Egyptian jerboa depends on echolocation to find food
- 9 Fish need clean and pure water to survive



- | | | |
|----|---|---|
| 10 | Fish breathe through the lungs | ✗ |
| 11 | Ants can communicate with each other by singing. | ✗ |
| 12 | Rough objects reflect light better than smooth ones. | ✗ |
| 13 | The moon is not a source of light | ✓ |
| 14 | Frogs can breathe through the lungs | ✓ |
| 15 | Dolphins have a stronger sense of hearing than humans | ✓ |
| 16 | The scientific idea of a blind person's cane is echolocation. | ✓ |
| 17 | Burning forests is one of the positive human activities on the environment | ✗ |
| 18 | Cutting down forests can cause environmental change | ✓ |
| 19 | Animals that are active at night are called nocturnal animals | ✓ |
| 20 | Bats rely on echolocation to find food. | ✓ |
| 21 | Carbon dioxide gas is expelled from the body during exhalation | ✓ |
| 22 | We can differentiate between hot and cold objects using the digestive system | ✗ |
| 23 | The body of penguin is covered by dense fur in order to be warm | ✗ |
| 24 | The ecosystem can be restored by eliminating pollution | ✓ |
| 25 | The body of amphibians is covered with a skin that allows water and gas to pass through | ✓ |
| 26 | Buttress root of the Kapok tree grows upward. | ✓ |
| 27 | We can differentiate between hot and cold objects by sensory receptors. | ✓ |
| 28 | Objects can be seen due to the absorption of light | ✗ |
| 29 | The sun and the moon are sources of light | ✗ |
| 30 | Smooth surfaces reflect light better than rough surfaces. | ✓ |
| 31 | Thick white fur is an adaptation in bears that live in polar regions | ✓ |
| 32 | Speaking, writing are ways to communicate with people. | ✓ |
| 33 | Black bears have dark fur to hide among trees. | ✓ |
| 34 | The ears of arctic fox are longer than those of fennec fox | ✗ |
| 35 | All type of sharks live in fresh water | ✗ |
| 36 | Living organisms can adapt their environmental conditions through structural adaptation and behavioral adaptation | ✓ |
| 37 | The behavioral adaptation is a change in the body structure of a living organism to survive. | ✗ |



- 38 Mangrove trees adapt to resist the water waves through their long, strong roots. ✓
- 39 Plants have structural adaptation only to help them survive and grow in different environments. ✗
- 40 One of the structural adaptations of acacia tree is that it has large, wide roots called buttress roots ✗
- 41 Hand-shaped leaves of kapok tree is considered as a behavioral adaptation. ✗
- 42 The stomach is an important organ in the digestive system ✓
- 43 Digestion process begins in the stomach with the help of saliva. ✗
- 44 The food passes through the large intestine before it goes into the small intestine ✗
- 45 We eat food to obtain energy. ✓
- 46 Esophagus is an important organ in the respiratory system ✗
- 47 The lungs are important organ in the respiratory system ✓
- 48 The diaphragm is an important organ in the digestive system ✗
- 49 Amphibians include frogs and salamanders ✓
- 50 The sense of hearing of dolphin is stronger than human ✓
- 51 Your sense of hearing allows you to see the light of flashlight ✗
- 52 The heart is an important organ in the nervous system ✗
- 53 The brain responsible for processing information ✓
- 54 Bats use their sense of smell to avoid dangers. ✗
- 55 Whales can communicate with each other by using songs. ✓
- 56 Light travels in straight lines. ✓
- 57 Both human and animal need light to see. ✓
- 58 Wood is a transparent object that allows light to pass through it ✗

Question 03

complete

- 1 The nervous system consists of brain, spinal cord and nerves.
- 2 Examples of nocturnal organisms include bat and owl.
- 3 The brain is part of the nervous system.
- 4 The brain is like the command for human body.



- 5 Nerves send(s) messages to the brain.
- 6 Man uses codes to transfer information.
- 7 Amphibians breathe using lungs and skin.
- 8 One of the ways of communication in the human is language - writing.
- 9 Some of the changes that affect ecosystems are cutting down trees and air pollution.
- 10 Fireflies use the sense of sight to communicate with each other.
- 11 The muscle that helps in respiration process is diaphragm.
- 12 To communicate by sight, we need light.
- 13 In order to translate the code, the brain must distinguish it.
- 14 An organ that pushes the food to the stomach is esophagus.
- 15 One example of code is thump up.
- 16 During exhalation carbon dioxide gas is released while inhalation oxygen gas is interred.
- 17 Among the organisms that have the ability to locate their prey by echolocation bat and dolphin
- 18 The bull shark lives in fresh and salt water.
- 19 Fireflies communicate with each other through Light
- 20 Fish extract gas oxygen dissolved in water and humans use this gas during the inhalation process.
- 21 Fireflies are found on mangrove trees in Thailand.
- 22 White fur helps Polar animals to hide in the snow.
- 23 Light is produced as a result of chemical reaction occurs inside the body of the fireflies.
- 24 The diaphragm moves upward during exhalation and downward during the process of inhalation.
- 25 Raising the thumb – up is a type of code.
- 26 Buttress roots help the kapok tree to hold in the soil.



- 27 Fireflies use the sense of **sight** to communicate.
- 28 Fireflies are used **wings** to release flashes of light.
- 29 The pharynx is an organ of **digestive / respiratory** system while the lungs are organs of the **respiratory** system.
- 30 **Mouth** is from the organs of the digestive system.
- 31 **Nose** is from the organs of the Respiratory system.
- 32 **Brain** processes and interprets data.
- 33 The gills in the fish are considered as **structural** adaptation.
- 34 **Wood** is an example of an opaque object.
- 35 Dolphins use **echolocation** to know the location of its prey.
- 36 Animals that can live both in water and on land are called **amphibians**.
- 37 The penguin's body can keep warm through a thick layer of **fat** and dense **feathers**
- 38 Type of adaptation that some animals use to hide from their predators or preys is known as **camouflage**
- 39 Forest bears have **black** or **brown** colored fur, while polar bears have **white** colored fur.
- 40 The long ears of the fennec fox are example of **structural** adaptation.
- 41 Eyes of chameleon move independently of each other; this is considered as **structural** adaptation.
- 42 Short ears of arctic fox is considered **structural** adaptation, while its staying in burrows to be warm is considered **behavioural** adaptation.
- 43 **Acacia** tree has taproot to search for water.
- 44 **Mangrove** tree has long and strong roots to resist water waves.
- 45 The hand-shaped leaves of kapok tree allow **wind** to flow through them gently.
- 46 The leaves of water lilies are wide in order to **float** on the water surface and to absorb a large amount of **sunlight**
- 47 Air enters and exits the human body through **respiratory** system.
- 48 During inhalation, air travels down from your throat to your lungs through **trachea**
- 49 Humans use **lungs** to breathe, while fish use **gills** to breathe.



- 50 Fish breath oxygen gas which dissolved in water.
- 51 Fish have gills to breathe.
- 52 Starred agama lizard is a reptile, while frog is an amphibian
- 53 The dolphin has sharp sense of hearing
- 54 Sight and hearing are from sharp senses in owls.
- 55 Brain is the main control center in the body
- 56 Blind people can locate his friend by hearing sense.
- 57 Humpback whales communicate with each other with their hearing senses.
- 58 Nurse ants are responsible for sending smelly message when amount of food decreases
- 59 The form energy that can be seen is light energy.
- 60 Light travels in straight lines.
- 61 eye is the organ that we can use to receive light.
- 62 Fireflies use the sense of sight to communicate with each other.
- 63 Fireflies communicate with each other by producing a light
- 64 wood is an opaque object.
- 65 Air is considered an example for transparent materials.
- 66 water is transparent materials and you can see things through them

Question 04

write scientific term for each of the following

- 1 Characteristics that help living organisms survive and reproduce in the ecosystem. **adaptation**
- 2 A type of adaptation that help the animals to hide from a predator or sneak its prey. **camouflage**
- 3 A change in the structure of the animal's body **structural adaptation**
- 4 A process in which the lungs expand and fill with air. **Inhalation process**



- 5 The system responsible for get rid of harmful air from body
- 6 The organs that work together.
- 7 Animals that can live on both land and water
- 8 The continuous decrease in the number of individuals of an organism until the death of all its members
- 9 Organs in humans that work to extract oxygen from air
- 10 Special organs in fish that allow them to extract oxygen dissolved in water and remove carbon dioxide
- 11 Pollution caused by exhaust from cars and factories.
- 12 A bird that can turn its head backwards and has a bowl-shaped head with large eyes.
- 13 The property by which dolphins and bats can locate their prey.
- 14 Nerves that connect directly to the brain.
- 15 The body system that controls all body functions and nerves are part of it.
- 16 The time it takes for the body to react to different information such as danger.
- 17 Animals that are active at night look for food
- 18 A property used in a blind people cane to help them detect their surroundings.
- 19 Organisms communicate with each other through the sense of smell
- 20 A pattern that has meaning
- 21 Animals communicate with each other by flashing (lighting)
- 22 Raise your thumb up or down
- 23 The main control center in the human body
- 24 A tree lives in savannah forest
- 25 The main control unit in the human body.
- 26 The organ affected by light and responsible for vision.
- 27 Materials that allow light to pass through them.
- 28 Objects through which light is emitted.
- 29 Materials that cannot be seen through.

Respiratory system

System

Amphibians

Extinction

Lungs

Gills

Air pollution

Owl

Echolocation

nerves of eyes

Nervous system

Reaction time

Nocturnal animals

Echolocation

Ants

Code

Fireflies

code

brain

Acacia tree

brain

Eye

Transparent objects

source of light

Opaque objects



- 30 Trees that grow in Amazon rainforest.
- 31 A tree that can live, survive and securely in water.
- 32 It covers the body of some types of bears to blend in with snow and keeps their bodies warm.
- 33 A reptile that its body is covered by colored scales and has V-shaped feet.
- 34 A type of foxes has a tan-colored fur.
- 35 It covers the body of some bears to keep warm and blend in snow.
- 36 The fox that has extra-large ears to lose its heat
- 37 A structural adaptation that fixes the kapok tree in soggy soil and support its trunk
- 38 It is a tree that is found in snow and has a triangle shape.
- 39 An organ through which solid wastes of digestion leave the body.
- 40 A process of breaking down food into smaller parts that the body cells absorb and use to get energy and grow.
- 41 A large muscle that contracts during breathing in and relaxes during breathing out
- 42 It allows the air to pass from the nose to the trachea.
- 43 A gas presents in air and water, and is very important for breathing process
- 44 A group of ants which is responsible for sending smelly messages when there is a shortage of food.
- 45 Ants send a smelly message to alert the ants where to find the food.
- 46 A tool used by the man works as the eyes of fishing cats at night.
- 47 A body that appears lighted in the sky, but it is not considered as a source of light.
- 48 The object which allows light to pass through it
- 49 It is a code that use symbols in a pattern to give a specific meaning according to the arrangement of letter in a word
- 50 It is a code in form of sounds used to transfer information

- Kapok tree
Mangrove tree
Thick white fur
Panther
chameleon
Fennec fox
Thick white fur
fennec fox
Buttress root
Pine tree
Anus
Digestion
process
Diaphragm
Throat
(pharynx)
Oxygen gas
nurse ants
Scout ants
night vision
goggles
The moon
transparent
object
Writing
language



Question 05

What is meant by each of the following:

1- camouflage.

It is a way of adaptation that some animals use to hide from their predators or their preys

by blending in with the surrounding environments

2- Response time.

The time taken by a living organism's body to respond to danger

Code

The pattern that has meaning.

Question 06

cross the odd word

- | | | |
|---|--|------------|
| ① | Penguin - Fennec fox - Polar bear - Arctic fox | Fennec fox |
| ② | Penguin - Polar bear - Snake - Arctic Fox. | Snake |
| ③ | Nose - Throat - Trachea - Anus. | Anus |
| ④ | Nose - Trachea - Stomach - Lungs. | stomach |
| ⑤ | Fire - The moon - The Sun - The light bulb. | moon |
| ⑥ | Wood. Glass cup-Book-Wall | Glass cup |

Question 07

Mention one function of:

Nerves in the human body.

They carry message from the brain to the spinal cord and body parts and vice versa.

The spinal cord in the human body.

It carries messages from the brain to body parts and vice versa.

The brain in the human body

It is the main control center of the body.



Nerves in the human body.

They carry messages from brain to spinal cord and body parts and vice versa.

The nervous system in the human body.

it helps the body to avoid danger.

it gathers the information from the environment.

The cane used by a blind person.

It helps blind person to walk safely by change echo into vibrations to tell blind person where objects around him.

Question 08

Give reason

- 1 Fennec fox has sandy-colored fur
Fennec fox has a sandy- colored fur to blend in with the desert
- 2 Penguin covered with dense feathers
To keep its body warm
- 3 Fennec fox has extra-large ears.
to lose heat and cool its body,
- 4 Pine tree has a triangular shape.
To slide the snow easily.
- 5 Water lilies have wide leaves.
To absorb a large amount of sunlight – to float on water
- 6 The Egyptian mongoose makes sounds.
To communicate with each other and to move to search for food.
- 7 Humans and fish are similar in some characteristics.
Both of them breathe in oxygen gas and breathe out carbon dioxide
- 8 Humpback whales sing underwater.
To communicate with each other.
- 9 Palm trees have long and strong roots.
To resist strong winds.



- 10 Animals don't eat Acacia tree leaves.
Because its leaves have sharp spines, and they are at the top of the tree.
- 11 Barbary fig has spiny leaves.
To prevent animals from eating its fruits and leaves
- 12 Kapok tree stay upright in soggy soil.
Because it has buttress roots that fix it in soggy soil
- 13 Fish die when they leave the water.
Because fish use gills to breathe oxygen which dissolve in water
- 14 Humans must plant forests that they cut before.
To restore ecosystem and decrease pollution.
- 15 Amphibians can live both in water and on land.
on land they can breathe by lungs
in water they can breathe by skin
- 16 Bats can locate their prey in the dark.
Because they depend on echolocation (super hearing sense)
- 17 Dolphins can hear different types of sounds.
Because it has super sense of hearing.
- 18 Animals that live in hot places become active at night.
Because the weather is cool at night and they have super hearing
sense allow them to locate preys by echolocation.
- 19 A blind persons can detect their surroundings.
Because blind person cane depends on echolocation, it changes echo
into vibration allow blind person to locate objects
- 20 The moon is not a source of light.
Because moon don't emit light, but it reflects sunlight
- 21 The Egyptian jerboa jumps quickly when it senses danger.
Because it has long hind legs to jump long distance and long ears to
hear the snake so it can run away quickly.
- 22 Fireflies emit a luminous flash.
to communicate - warn off fireflies from predators -attract a mate to
reproduce (chemical reaction happens in its body cause it light)



- 23 Humans sometimes use codes.
To communicate and transmit information
- 24 Codes are very important in human life.
To communicate and transmit information.
- 25 Glass is a transparent material.
because it allows light to pass through it and objects can be seen through it
- 26 The polar bear has thick white fur.
Thick fur to stay warm
white fur to blend in with snow
- 27 Panther chameleon has V-shaped feet and a long tail.
To hold the branches of trees
- 28 Mangrove tree has long and strong roots.
To resist the water waves
- 29 Kapok tree has hand-shaped leaves
To allow wind to move gently through them without tearing leaves
- 30 The body of chameleon is covered with colored scales.
To make camouflage
- 31 A mirror can reflect light better than a painted surface.
Because the mirror is more smooth than the painted surface
- 32 The inhaled air differs from the exhaled air.
Inhaled air rich in oxygen gas, exhaled air rich in carbon dioxide gas
- 33 Gills are unique structural adaptation in fish.
Fish use gills to respire oxygen under water
- 34 Owls can hunt during the night
Because owl is nocturnal animals with sharp hearing sense
- 35 We can see objects when light fall on it
Because of light reflection
- 36 A shadow is formed when light falls on an opaque object.
Because opaque object doesn't allow light to pass through
- 37 Fishing cat eyes glow in the dark
because it has a mirror-like membrane at the back of its eyes which reflect light
- 38 Sun is considered a source of light
Because it emits light



Question 09

what happens

- 1 Owls don't have large ears.
They can't hear well so it can't hunt at night
- 2 The Egyptian jerboa hears a snake moving towards it.
The brain send message to leg to jump and hop quickly
- 3 Your hand is touching the thorns of a cactus plant.
I will move my hand quickly on less than one second.
- 4 The Egyptian jerboa does not have a long leg.
It can't jump long distance to run away quickly
- 5 If human don't chew the food.
the digestive system can't digest food well
- 6 Forest trees are cut down.
The number of plants will decrease and oxygen gas will decrease, air pollution will increase
- 7 The arctic fox doesn't have thick white fur.
It can't keep its body warm, cannot hide in snow.
- 8 The panther chameleon has no V- shaped feet.
It can't hold the branches of the tree.
- 9 Fennec fox has a short ear.
It can't cool its body
- 10 If you stop breathing for a long time.
You will die because you need to take oxygen gas and get rid of carbon dioxide
- 11 Fireflies did not emit flashes.
It can't communicate with each other- can't warn other firefly from predators - can't attract a mate to reproduce
- 12 Palm trees have not thick and strong roots.
They can't resist strong wind.
- 13 Many communities are built and agriculture is neglected.
The number of plants will decrease, and oxygen gas will decrease, air pollution will increase



- 14 Light falls on a rough surface such as wood or paper.
Light rays will reflect in different directions.
- 15 The jerboa does not have an ear that is sensitive to sound.
It can't hear the movement of snake so it can't jump and runaway from danger.
- 16 Nerves are not part of the human body.
The messages can't be sent between brain, spinal cord and body parts and vice versa
- 17 The codes have no meaning.
Brain can't decode and interprets the meaning
- 18 The small intestine is not part of the digestive system.
complete digestion and absorption of food can't be happened.
- 19 Humans do not have lungs.
Human can't breathe (can't respire)
- 20 Acacia trees don't produce a poison.
The giraffe will eat its leaves.
- 21 Animals cannot locate their prey.
They will die because they can't get food.
- 22 The backcountry hikers do not have mirrors.
They can't attract the attention of rescue helicopters.
- 23 Saliva is not secreted during digestion.
food can't be moistened and food can't begin its digestion in mouth
- 24 Human lungs are replaced by gills.
Human can breathe in oxygen gas from water.
- 25 Light falls on a smooth surface such as a mirror.
Light will reflect in one direction.
- 26 Humpback whales cannot sing underwater.
They can't communicate with each other.



- 27 living organisms cannot adapt with environmental or ecosystem change
They cannot survive and reproduce
- 28 The polar bear has thin fur instead of its thick fur
It cannot adapt in its cold environment
- 29 Diaphragm moves up in respiration process (during exhalation)
air rich in carbon dioxide comes out of the lungs, size of chest decrease
- 30 The diaphragm muscle contracts and moves down.
the air rich in oxygen enter the lung, the size of chest increases
- 31 When the light falls on a smooth and shiny surface as mirror
Light rays will reflect in one direction.
- 32 The traffic light becomes red while you are going to cross road
The eyes send a message to brain – brain process information (stop walking)
- 33 Light fall on transparent object as glass window
Light will pass through it and I can see objects through it
- 34 When firefly wants to attract a mate to reproduce?
It produces a chemical reaction inside its body to light up

Question 10

Determine the type of adaptation in the following:

- | | |
|--|------------------------------|
| 1 Panther chameleons have V-shaped feet | Structural adaptation |
| 2 Fennec fox lives in burrows to stay cool. | Behavioral adaptation |
| 3 The tick, white fur in polar bears. | Structural adaptation |
| 4 Panther chameleon puffs up its body to look fierce | Behavioral adaptation |
| 5 Thick, white fur in the polar bear. | Structural adaptation |
| 6 Fennec fox lives in burrows. | Behavioral adaptation |
| 7 Bull shark hunts in the day as well as the night. | Behavioral adaptation |



Question 11

Give one example of the following:

Behavioral adaptation of living organisms.

Fennec fox lives in burrows in hot sunny day.

- Structural adaptation of living organisms.

(penguin has dense feathers and thick layer of fat)

- The animals that enable to hide in their environment (ecosystem)

Polar bear has white fur to hide in snow.

- Behavioral adaptation in Acacia trees.

It produces poison to make the taste of leaves very bad.

- Behavioral adaptation in kapok trees.

It can send smelly messages by wind to attract bats.

- Structural adaption in water lilies.

Water lilies have floating wide leaves to absorb sunlight.

Question 01

choose the corret answer

unit 2

- ① When an object is in motion, this means that itschanges
 (a) color (b) shape (c) size (d) **position**
- ② When you move something towards you, this represents.....
 (a) pushing force (b) light energy (c) **pulling force** (d) sound energy
- ③ Push or pull actions are considered as types of
 (a) **force** (b) device (c) energy (d) adaptation
- ④ Which of the following will cause an object to move?
 (a) balanced forces (b) **unbalanced forces** (c) sound energy (d) light energy
- ⑤ All of the following are examples of motion, except
 (a) running person (b) ball travelling through air (c) flying bird (d) **sleeping dog**



- 6 When you throw a ball in the air, the gravity will make it move
 (a) upward (b) forward (c) downward (d) backward
- 7 The force that occurs when an object rubs against another object is called.....
 (a) friction (b) gravity (c) push (d) pull
- 8 When the force acting on a moving body increases, its speed will
 (a) increase (b) decrease (c) remain constant (d) stop
- 9 The force that slows down the speed is called
 (a) push (b) gravity (c) friction (d) pull
- 10 There is a force between the car tires and the road that acts to decrease car's speed gradually.
 (a) gravity (b) pulling (c) pushing (d) friction
- 11 is the ability to do work or make a change.
 (a) Speed (b) Work (c) Energy (d) Displacement
- 12 The form of energy that can be seen is energy.
 (a) thermal (b) electrical (c) sound (d) light
- 13 In the electric lamp, electrical energy is changed into energy
 (a) sound (b) chemical (c) light (d) potential
- 14 The energy that is stored in an object due to its position, is known as energy.
 (a) kinetic (b) potential (c) electrical (d) chemical
- 15 The energy gained by a ball when it falls from above is energy
 (a) Potential (b) kinetic (c) light (d) chemical
- 16 Electric heater produces energy.
 (a) kinetic (b) thermal (c) electric (d) chemical
- 17 Chemical energy stored in batteries is considered a form of energy
 (a) potential (b) kinetic (c) heat (d) light
- 18 Chemical energy can be stored in
 (a) food only (b) battery only (c) television and food (d) food and battery
- 19 The force that causes an object to move a distance is called
 (a) work (b) potential (c) gravity (d) pull



- 20 A ball at the top of the hill stores energy
 (a) potential (b) sound (c) kinetic (d) heat
- 21 How can we calculate the speed of an object?
 (a) $\frac{\text{distance}}{\text{time}}$ (b) distance + time (c) distance x time (d) distance - time
- 22 Which of the following is a measuring unit of speed?
 (a) hr/km (b) sec/m (c) kg/sec (d) m/sec
- 23 The airbag is made of.....
 (a) carton (b) nylon (c) rubber (d) cotton
- 24 Kinetic energy isn't affected by the
 (a) mass (b) speed (c) color (d) weight
- 25 Speed is a measurement of how something is moving.
 (a) long (b) fast (c) tall (d) much
- 26 Collisions usually produceenergy
 (a) solar (b) sound (c) gravitational (d) chemical
- 27 When a car that moves forward stops suddenly, the passengers move ...
 (a) backward (b) forward (c) upward (d) downward

Question 02

put (true) or (false)

- 1 The object moves a greater distance if a greater pushing force is exerted on it. ✓
- 2 The body is static when it moves from one place to another. ✗
- 3 Friction acts in the same direction of the motion of the body. ✗
- 4 The movement of the planets can be seen in the sky. ✗
- 5 When a roller coaster reaches the top, it stores kinetic energy. ✗
- 6 If a balanced force acts on the body, it moves. ✗
- 7 Opening the desk drawer is a pulling force ✓
- 8 The engine of the jet plane is weaker than the engine of the car ✗
- 9 Kinetic energy is transferred when a moving car collides with a rest one. ✓
- 10 A ball at rest on the ground has kinetic energy ✗



- 11 Objects do not move if no force affects them ✓
- 12 The kinetic energy of objects increases as their speed increases. ✓
- 13 Electrical energy is converted into light energy in the heater ✗
- 14 The energy stored in a spring is kinetic energy. ✗
- 15 The energy stored in food is chemical energy ✓
- 16 When an electric heater is turned on, it produces thermal energy ✓
- 17 The kinetic energy of objects increases as their speed increases. ✓
- 18 The greater the angle of inclination, the greater the speed of the moving object. ✓
- 19 When the speed of the car increases, its kinetic energy decreases ✗
- 20 When the car stops once, the passengers rush back. ✗
- 21 Mass is one of the factors that affect speed. ✓
- 22 Air resists the motion of a car. ✓
- 23 Pushing force of gravity makes the ball falls down after throwing it in air ✗
- 24 The balanced forces cause the object to move. ✗
- 25 Hitting a tennis ball needs a pulling force ✗
- 26 When a pen falls down from your hand, the acting force is gravity ✓
- 27 Unbalanced forces cause a change in the object position ✓
- 28 Objects fall down to the Earth due to friction force. ✗
- 29 When a car crashes into a wall, it will not stop. ✗
- 30 When a car runs out of fuel on a flat road, its speed increases gradually until it stops. ✗
- 31 Any moving object has kinetic energy ✓
- 32 When the roller coaster slides down fast, its kinetic energy increases ✓
- 33 The moving objects only have energy, while the objects that don't move have no energy ✗
- 34 When you kick a ball, kinetic energy is produced ✓



- 35 As the height of an object from the Earth's surface increases, its potential energy decreases ☐
- 36 In electric fan, kinetic energy is converted into electric energy ☐
- 37 We can see the movement of electricity through a wire. ☐
- 38 From the examples of kinetic energy, the bird which stays in its nest. ☐
- 39 Energy can be changed from one form to another. ☒
- 40 Potential energy is the energy of moving body. ☐
- 41 Thermal energy is an example of kinetic energy. ☒
- 42 Energy is the ability to do work. ☒
- 43 Seatbelt is one of safety equipment in cars. ☒
- 44 After collision, the air bag deflates the same speed as it inflates. ☒
- 45 Drivers should drive as fast as possible to avoid accidents. ☐
- 46 The high-speed moving objects face less dangers than the slower objects. ☐
- 47 The mass of a moving body affects its speed. ☒
- 48 As the speed increases, the amount of fuel used decreases. ☐
- 49 We can measure the covered distance in kilometer unit. ☒
- 50 Kilogram is the measuring unit of speed ☐
- 51 Speed and mass are factor that affect the kinetic energy of a moving object ☒

Question 03

complete

- 1 The body whose position does not change is in a static state.
- 2 Force causes the movement of static bodies.
- 3 The fastest truck in the world is the shockwave truck.
- 4 The speed of the roller coaster increases as it moves towards down / bottom of the ramp.



- 5 Kicking the ball is **pushing** force while tightening the hook is **pulling** force.
- 6 The energy used to move the roller coaster up is **electric energy**.
- 7 The SHOCKWAVE truck is stopped by **3 parachutes**.
- 8 When you clap your hands, **kinetic** energy is converted into **sound** energy.
- 9 Opening the door handle is **pulling** force.
- 10 The speed of trucks different according to **power and number of engines**.
- 11 There are two types of force **pushing** and **pulling** force.
- 12 The **kinetic** energy increases as the speed of the object increases.
- 13 A moving object is acted by **unbalanced** forces while the body at rest is acted by **balanced** forces
- 14 As the speed increases, the amount of **kinetic** energy of the body increases.
- 15 When an unbalanced force acts on a body, it will **move toward greater force (change its position)**.
- 16 The apple falling from the tree is a **gravity** force.
- 17 Light energy is considered as **kinetic** energy.
- 18 When a force acts against the direction of motion of an object, its speed **decrease**.
- 19 Factors affecting kinetic energy **the speed** and **the mass**.
- 20 An object at the top of a hill has no **kinetic** energy.
- 21 In an electric fan, **electric** energy is converted into **kinetic** energy.
- 22 As the mass of an object increases, the **potential** energy increases.
- 23 Energy is what affects different objects and makes them change its **position**.
- 24 When a skateboarder reaches the top of the hill and stops, his kinetic energy is **zero**
- 25 Chemical energy is considered as **potential** energy.



- 26 The **battery** has chemical potential.
- 27 When you push a small box with your foot, energy is transferred from **your foot** to **the box**.
- 28 In a flashlight **chemical** energy is converted into **light** energy.
- 29 As the height of the object increases, **the potential** energy increases.
- 30 During a car crash, the **airbag** is inflated with a gas to provide a soft cushion.
- 31 **Energy** is the ability to do work.
- 32 If the mass of an object decreases this mean that its kinetic energy **decrease**
- 33 In gas oven, **chemical** energy changes into **thermal** energy.
- 34 In electric heater, **electric** energy changes into **thermal** energy.
- 35 In electric bell, electrical energy changes into **sound** energy.
- 36 The energy that is stored in an object is called **potential** energy.
- 37 Airbags absorbs the **energy** of the car during collision.
- 38 When objects collide with each other, **energy** is transferred between them.
- 39 **Seatbelt** is a safety equipment that is used to prevent car passengers from moving forward when the car stops suddenly.
- 40 When the speed of an object increases, its kinetic energy **increases**
- 41 The wrecking ball is made of **steel**
- 42 From the security and safety equipment in the car **seatbelt** and **airbag**
- 43 The unit of speed is **kilometer / hour or meter / second**
- 44 Energy is transferred when **collision** occurs.
- 45 The wrecking ball is used in **collide buildings**.
- 46 When the tennis ball hits the racket, we hear **sound energy**.
- 47 The kinetic energy of the body increases with increasing **the speed**.
- 48 The distance travelled by the body is measured in **meter or kilometer**.



- 49 Kinetic energy increases with mass and speed.
- 50 Speed depends on two main factors distance and time

Question 04

write scientific term for each of the following

- | | |
|---|------------------|
| 1 The ability to do work. | Energy |
| 2 Energy stored in an object due to its position | potential energy |
| 3 The energy that the object gains due to its motion | kinetic energy |
| 4 Change the place of the body from one place to another | Motion |
| 5 Forces that pull objects down toward the Earth | Gravity |
| 6 A force that arises between the surfaces of two bodies in contact | friction force |
| 7 The force that is affected by the height of objects. | Gravity |
| 8 A force that causes objects move toward you. | Pulling force |
| 9 The force that makes objects move away from you. | Pushing force |
| 10 A change in the position of an object relative to a fixed starting point | Motion |
| 11 The energy that gasoline stores inside the car | Chemical energy |
| 12 Energy that includes light energy. | kinetic energy |
| 13 A physical quantity determined by distance and time. | speed |
| 14 The distance travelled during the unit of time. | speed |
| 15 A very heavy ball used to knock down building | wrecking ball |
| 16 It is a safety equipment that prevents the body from moving forward when a car crashes | seatbelt |
| 17 One of the fastest and most powerful trucks in the world | shockwave trunk |
| 18 It is a push or pull that is applied to an object cause it to change its position | force |
| 19 It is a force that causes an object to move a distance | work |



- 20 The form of energy that increases when the speed of an object increases
- 21 The process in which two objects or more crash into each other and includes an energy.
- 22 Safety equipment provide a soft cushion, when it inflates automatically with a gas during collision.
- 23 A heavy steel ball that swings on a cable and it is used in destruction of buildings parts.

kinetic energy

collision

airbag

A wrecking ball

Question 05

What is meant by each of the following:

- 1 Force It is a push or pull that is applied to an object causes it to change its position
- 2 Pushing force A force that you make to move an object away from you
- 3 Pulling force A force that you make to move an object toward you
- 4 Energy It is ability to do work or cause change.
- 5 Potential energy it is the amount of energy that is stored in an object due to its position
- 6 Kinetic energy is the energy of an object due to its motion
- 7 Movement it is any change in the position of an object relative to fixed starting point
- 8 Gravity it is the force that pull objects down toward the earth

Question 05

Give Reason for each of the following

- 1 The driver uses the seat belt while driving.
To prevent the driver from moving forward when the car stop suddenly
- 2 The larger body in the mass does more damage when collision.
Because it has more mass so it has more kinetic energy and more speed so it will cause more damage.
- 3 The airbag is very important in the car.
Because it slows the speed of the driver and absorb energy of the passengers.



- 4 The distance traveled by a car varies with its mass.
when the mass of object increases the distance decreases
when the mass of object decreases the distance increase
- 5 The body does not move when it is exerted by balanced forces.
Because the forces are equal so it will not move.
- 6 The car starts moving when the gases come out of the fire extinguishers.
Because the air of fire extinguisher moves backwards and the cart moves forward.
- 7 The speed of the jet plane is greater than the speed of the truck.
Because jet plane has more powerful engines
- 8 An object moves when an unbalanced force acts on it.
because unbalanced forces are unequal forces so, object will move toward the greater force
- 9 Pressing the brakes of the car.
the speed of car will decrease until it stops because of friction force
- 10 The speed of a car decreases when the brakes are applied.
because of friction force between car tire and road
- 11 The book on the table has energy.
Because it is placed on a height from earth surface so it has potential energy.
- 12 The food we eat has energy.
Because it stores chemical energy that human need to do activities.
- 13 The shockwave truck is faster than the normal truck
Because shockwave truck has three jet engines
- 14 Engineers use parachutes in shockwave truck
To help slow down the shockwave truck quickly
- 15 If you let a pen out of your hand, it falls to the ground
Because gravity pull it down toward the ground



- 16 When you stop pedalling during movement of your bicycle, it slows down until it stop
Due to friction force between the bicycle tires and the road that act in the opposite direction of motion
- 17 Electric lamp produces different forms of energy
Because it produces light and thermal energy
- 18 Airbag deflates after seconds of collision.
Because it has holes to deflate to let driver get out of the car

Question 06

What happens if ?

- 1 Affected the body of unbalanced forces.
The body will move toward greater force.
- 2 Increase the number of fire extinguishers on the car.
the speed of cart increases and the distance that it moves increases
- 3 Affected the body of balanced forces.
It will not move.
- 4 Kicking the ball with a certain force.
pushing force cause ball to move (change its position)
- 5 Turning on the gas oven.
The chemical energy changes into thermal energy.
- 6 Turning on the fan in the house.
The electric energy changes into kinetic energy
- 7 The ball collides with the tennis racket.
The bat transfers its kinetic energy to the ball then the ball changes its direction and increase its speed.
- 8 Two body collide with each other.
They make collision and the energy transfer between them and we can hear sound energy.
- 9 Increase the angle of inclination of the moving object.
the speed and the kinetic energy of object will increase.



- 10 The shockwave driver opens the parachutes
The shockwave truck speed slow down quickly
- 11 You let your toy out of your hand
It will fall down towards the ground because of gravity force
- 12 A car runs of fuel on a flat road
Its speed decreases gradually till it stops
- 13 A roller coaster moves from up to down
The stored potential energy changed into kinetic energy
- 14 You operate a washing machine
Electric energy changes into kinetic energy
- 15 You switch on an electric lamp
The electrical energy changes into light energy and thermal energy
- 16 The speed of a car increases. (according to its kinetic energy).
The kinetic energy of the car increases
- 17 When the mass of a moving body increases, as it moves down wards along a ramp. (According to the kinetic energy)
The kinetic energy will increase

Question 03

Answer the following questions

1-Give an example of an easily seen movement and another that cannot be seen.

we can see a walking person

we can't see the rotation of earth around the sun

2- Give an example of pushing and pulling force.

pushing force: kick the ball

pulling force: gravity pull objects toward the earth

3- Give an example of an object that is affected by unbalanced force

in tug-of-war game

moving rope when one team pull the rope with greater force

4- Mention an example of an object that has balanced forces acting on it.

* you sit on a chain

* book on the table



5- Mention one form of potential energy.

Gravitational potential energy.

6- Mention the difference between potential and kinetic energy.

potential energy stores in object due to its position.

kinetic energy of object due to its movement.

7- Mention one form of kinetic energy.

Movement of sound waves in air – movement of light waves in the air.

8- Mention the state of the body when balanced and other unbalanced forces affect it.

balanced force: the object will not move

unbalanced force: the object will move toward the greater force

9- Explain the difference in the distance traveled by two cars of different masses.

the small car will move longer distance

the big car will move shorter distance

10- Arrange the energy transformations that occur in a roller coaster.

***First electric energy of motor → kinetic energy**

*** At the top: kinetic energy → potential energy**

***When it moves down: potential energy → kinetic energy**

11. Mention some of the safety equipment in the car?

1 – seatbelt

2- airbag

12. Mention the equation by which the speed of a car can be determined.

$$\text{Speed} = \frac{\text{distance}}{\text{time}}$$

Calculate the speed of a bicycle moving a distance of 200 meters in 5 second

$$\text{Speed} = \frac{\text{distance}}{\text{time}}$$

$$\text{Speed} = \frac{200}{5} = 40 \text{ m/ sec.}$$

13. A car traveled a distance of 200 kilometers in two hours, calculate the speed

$$\text{Speed} = \frac{\text{distance}}{\text{time}}$$

$$\text{Speed} = \frac{200}{2} = 100 \text{ km/ hr.}$$

جميع أسئلة الشيت أسئلة رسميه لامتحانات المحافظات و تشمل أسئلة التقييمات من الاسبوع الاول للأسبوع ال 13

تم بحمد الله

بسم الله الرحمن الرحيم " إِنَّ الَّذِينَ آمَنُوا وَعَمِلُوا الصَّالِحَاتِ إِنَّا لَا نُضِيعُ أَجْرَ مَنْ أَحْسَنَ عَمَلًا " صدق الله العظيم



حمل الآن

مجانا وحصريا

المراجعة رقم (4)

الترم الاول





Final Revision

★ (1) Write the scientific term:

Mr. Ahmed Elbasha

- 1) The main control center in the human body. (.....)
- 2) The energy that is stored in food and batteries. (.....)
- 3) The time taken by organism's body to respond to different information. (.....)
- 4) It is the force that is exerted when objects rub against each other (.....)
- 5) It is the visible form of energy. (.....)
- 6) It is a type of force that makes objects move away from you. (.....)
- 7) It is tree that is found in snow and has a triangle shape. (.....)
- 8) The force that pulls objects downward. (.....)
- 9) Small sacs surrounded with blood vessels extract oxygen from air (.....)
- 10) A system that controls all body function and nerves are one of its parts. (.....)
- 11) A group of ants that is responsible for sending smelly message when there is a shortage of food. (.....)
- 12) It delivers messages between the spinal cord and different body organs. (.....)
- 13) They include the eyes, nose, ears, tongue and skin, and they receive information from the surroundings and send it to the brain. (.....)
- 14) A type of surface that reflects light in different directions when the light falls on it. (.....)

- 15) A large muscle that contracts during breathing in and relaxes during breathing out. (.....)
- 16) A property that helps animals blend in with their surrounding environment. (.....)
- 17) A system that works inside the human body to keep the human away from danger. (.....)
- 18) The energy that is used to operate television. (.....)
- 19) A feature in the bull shark, in which the upper surface of its body is darker than its lower surface. (.....)
- 20) A type of foxes that has sandy-colored fur to adapt its desert environment. (.....)
- 21) Safety equipment used to provide soft cushion, when it is inflated automatically with a gas during collision of cars. (.....)
- 22) A plant lives in saltwater habitat and has long, strong roots to resist the water waves (.....)
- 23) The organ used to differentiate between the taste of different types of food (.....)
- 24) The ability to do work or cause a change. (.....)
- 25) A process through which the body gets oxygen from the air and expels out carbon dioxide. (.....)
- 26) The energy of an object due to its motion. (.....)
- 27) The objects which allow light to pass through them. (.....)
- 28) A reptile that its body is covered by colored scales and has V-shaped feet. (.....)
- 29) A body that appears lighted in the sky at night, but it is not considered as a source of light. (.....)
- 30) The organ responsible for processing information transmitted to it, then send messages to the sensory organs. (.....)
- 31) Ants send a smelly message to alert the ants where to find the food. (.....)

***(2) Choose the right answer:**

1. All the following are transparent objects, except

- a. glass. b. water. c. wood. d. air.

2. The presence of a thick white fur is an adaptation in

- a. polar bear. b. forest bear. c. desert lizard. d. bat.

3. energy is produced from the radio speaker.

- a. Light b. Sound c. Thermal d. Chemical

4. The force that tries to stop an object moves on a surface is called

- a. gravity. b. friction. c. push. d. pull.

5. All the following are light sources, except

- a. the Sun. b. fire. c. eyes. d. light lamp.

6. When an objects is in motion, this means that its changes.

- a. color b. shape c. size d. position

7. The energy of an object due to its motion is known as energy.

- a. sound b. thermal c. potential d. kinetic

8. Fish use to breathe in water.

- a. tail b. eye. c. lung d. gills

9. Animals are active at night are called

- a. endangered. b. extinct. c. nocturnal. d. diurnal.

10..... produce high pitched sound during winter.

- a. Owls b. Humpback whales
c. Toads d. Salamanders

11. When you move something toward you, this represents

- a. gravity force. b. light energy. c. pulling force. d. sound energy.

12..... covers the body of arctic fox.

- a. Heavy skin b. Heavy cloth
c. thick fur d. Many feathers

13..... is the ability to do work or make a change.

- a. Speed b. Work c. Gravity d. Energy

14. The bag is considered as surface.

- a. a transparent b. an opaque
c. a shiny d. a semi transparent

15. Reading and writing are common type of communication between

- a. animals. b. humans. c. plants. d. birds.

16. Which of the following can turn its head in all directions ?

- a. Lizard. b. Owl. c. Cat. d. Cow.

17. All of the following are forms of codes, except

- a. thumb up and down hands. b. face expressions.
c. writing. d. swimming.

18. Digestion process begins in the

- a. stomach. b. esophagus. c. Small intestine d. mouth.

19. Bull shark can hunt in

- a. fresh water only. b. salt water only.
c. fresh and salt water. d. water and air.

20. All the following organs belong to the respiratory system, except

- a. nose. b. two bronchi. c. two lungs. d. stomach.

21. are nocturnal animals with bowl-shaped faces.

- a. Owls b. Dogs c. Mongooses d. Bats

22. When a car suddenly stops, the passengers move

- a. backward. b. forward. c. upward. d. downward.

23. When the roller coaster stops, its kinetic energy

- a. doesn't change. b. increases. c. decreases. d. becomes zero.

24. is considered a behavioral adaptation in living organisms.

- a. Long ear b. Thick fur
c. Short leg d. Living in burrows

25. When exposed to danger, the system helps to recognize it and avoid it.

- a. circulatory b. digestive c. nervous d. respiratory

26. You have the most potential energy at height

- a. four meters. b. three meters. c. two meters. d. one meter.

27. moves in zigzag paths.

- a. Snake b. Jerboa c. Dolphin d. Owl

28. All of the following are components of digestive system, except

- a. spinal cord. b. stomach. c. mouth. d. liver.

29. The speed of a car that travels 400 meters in 40 seconds is

- a. 400 m/sec. b. 100 m/sec. c. 10 m/sec. d. 40 m/sec.

30. Dolphins depend on their sharp senses of to get food.

- a. sight b. taste c. smell d. hearing

31. The form of energy that can be seen is energy.

- a. thermal b. light c. electrical d. sound

32. The absorption of nutrients in the digestive system occurs in the

- a. small intestine. b. large intestine. c. esophagus.

33. The main control center of the human body is

- a. brain. b. blood. c. lungs.

34. Fast messages send by nervous system which we can't think about is

- a. blood. b. heart. c. reflex action.

35. Gills in fish are considered as adaptation.

- a. structural b. behavioral c. camouflage

36. To communicate through sight sense, we need

- a. making sound. b. availability of light.
c. heavy music. d. touching something.

37. From structural adaptations in water lily plant is that it has

- a. long root. b. needle leaves. c. tiny leaves. d. wide leaves.

38. You see yourself in the mirror due to the property of

- a. light analysis. b. absorption. c. reflection. d. density.

39. As the inclination angle of the ramp increases, the speed of the moving body

- a. decreases. b. increases. c. doesn't change. d. zero

40. The system responsible for moving your hand away from danger, such as touching a hot cup of tea, is the system.

- a. digestive b. respiratory c. nervous d. stomach

41. When you move something toward you, this represents

- a. pushing force. b. light energy. c. pulling force. d. sound energy.

42. Which of the following sentences describes the friction force ?

- a. It pulls objects toward the ground.
b. It pushes objects away from the ground.
c. It slows down or stops the moving objects.
d. It doesn't affect the moving objects.

43. The energy that is stored in an object due to its position, is known as

- a. kinetic energy.
- b. potential energy.
- c. electrical energy.
- d. chemical energy.

44. The potential energy of an object depends on

- a. its mass only.
- b. its height from the Earth's surface only.
- c. its mass and its height from the Earth's surface.
- d. its temperature.

45. is considered as a behavioral adaptation in the panther chameleon.

- a. Puffing up its body during danger
- b. Each eye can move independently
- c. V-shaped feet
- d. Long sticky tongue

46. If there is nothing to stop the movement of an object, this object will

- a. stay in motion.
- b. suddenly stop.
- c. stop after few minutes.
- d. stop after few seconds.

47. Camouflage means that the animal

- a. can be seen easily among its surrounding.
- b. is hard to be seen among its surrounding.
- c. is easily to be seen by its preys.
- d. can be seen easily by its predators.

48. Umbrella-shaped trees include

- a. mangrove tree and acacia tree.
- b. mangrove tree and kapok tree.
- c. acacia tree and kapok tree.
- d. barbary fig and water lilies.

49. The five senses of humans and animals include

- a. sight, hearing, touch, smell, and movement.
- b. sight, movement, taste, touch, and smell.
- c. taste, touch, movement, hearing, and smell.
- d. sight, hearing, taste, smell, and touch.

50. The mirror-like membrane present at the back of eyes of

- a. humans only.
- b. cats only.
- c. both humans and cats.
- d. neither humans nor cats.

51. Fennec foxes and arctic foxes live in burrows, this belongs to adaptation.

- a. only structural
- b. only behavioral
- c. both structural and behavioral
- d. neither structural nor behavioral

52.Speed is a measurement of how something is moving.

- a. long b. tall c. fast d. heavy

53.A very big truck needs to move.

- a. very small engine b. small engine
c. very big engine d. no engine

54.Push or pull actions are considered as types of

- a. force. b. device. c. energy. d. adaptation.

55.The nervous system can do all the following functions, except

- a. gathering information. b. processing information.
c. sending signals. d. falling of rains.

56.The speed of an object is measured in or meters per second.

- a. kilograms per hour b. grams per second
c. kilometers per hour d. kilograms per kilometers

57..... are animals that become active at night.

- a. Reptiles b. Amphibians c. Nocturnal animals

58.The friction force produces energy.

- a. thermal b. chemical c. electrical

59.There is a force between the car's tires and the road that decreases its speed gradually.

- a. gravity b. friction c. push d. pull

60.A ball at the top of the hill stores energy.

- a. potential b. sound c. kinetic

61..... passes the food from pharynx to stomach.

- a. Esophagus b. Stomach c. Trachea d. Alveoli

62.Paper and wood are materials.

- a. opaque b. transparent c. liquids d. gaseous

63.Penguin's feet have blood vessels that bring from up to his feet.

- a. warm blood b. cold blood c. warm water d. cold water

64.Fish breathe oxygen dissolved in water by

- a. lungs. b. gills. c. skin. d. fins.

65.By increasing the speed of moving object, the kinetic energy will

- a. increase. b. decrease. c. still constant. d. be slower

66. All of the following are components of nervous system, except

- a. spinal cord. b. heart. c. nerves. d. brain.

67. One of the adaptations that helps the animal to protect itself from enemies

- a. camouflage. b. extinction. c. reproduction.

68. The speed of a car that travels 300 kilometer in 3 hours is km/hr.

- a. 150 b. 50 c. 100

69. Collisions usually produce

- a. solar energy. b. sound energy.
c. gravitational potential energy. d. chemical potential energy.

70. In the electric lamp, electrical energy is changed into energy.

- a. sound b. chemical c. light d. potential

71. The organ responsible for the sight sense is

- a. the ear. b. the eye. c. the nose. d. the tongue.

72. When you throw a ball in the air, the gravity will make it move

- a. upward. b. forward. c. downward. d. backward.

73. The organ which stores solid wastes until it is released outside body is

- a. stomach. b. small intestine. c. large intestine. d. anus.

***(3) Complete the following:**

1. Food is digested completely in
2. The spinal cord is one of the main parts of system.
3. When you kick a ball upward force affects on it.
4. Fennec fox has colored fur that helps him hide in the desert.
5. Firefly beetles use their to release flashes.
6. If a truck moves in high speed so it has more energy.
7. Among animals can live in polar environment and
8. The fishing cats hunt at night due to bouncing of energy, while bull sharks use camouflage strategy to hunt.
9. Humans, amphibians and reptiles have to breathe oxygen gas in air.
10. Engineers use to slow down the motion of the Shockwave truck.
11. The speed affects the energy of a moving object.
12. In the electric bell, energy changes into energy.
13. Among safety equipment used during collision of cars are and
14. When you push a table on the floor, the transfers from your body to the table.
15. To increase the energy of any moving object we must increase its speed
16. Fireflies use the sense of to communicate with each other.
17. and are from sharp senses in owls.
18. In electric heater, energy changes into energy.
19. A ball at the top of a hill stores energy.
20. The force that causes falling objects toward the Earth is force
21. When the fuel runs out, the car decreases its speed due to force.
22. When the mass of an object increases, so its kinetic energy
23. The long ears of the fennec fox are example of adaptation.
24. Humpback whales communicate with each other with their senses
25. is the ability to do work.

***(4) Put (√) or (X) :**

1. Seatbelt is one of safety equipment in cars. ()
2. Exhaled air carries oxygen. ()
3. Gravity pulls objects downward. ()
4. We can determine the sound pitch by smelling sense. ()
5. The moon is a source of light, as it reflects sunlight. ()
6. The stopping object can't move until a force acts on it. ()
7. Whales can communicate with each other by using songs. ()
8. Gravity is the force that pulls objects downward to the Earth. ()
9. Digestion process begins in stomach with the help of saliva. ()
10. Kilogram is the measuring unit of speed. ()
11. Bats use their sense of smell to avoid dangers. ()
12. The brain is responsible for processing information. ()
13. Energy can be changed from one form to another. ()
14. Gravity force is an upward pulling force. ()
15. Speaking, writing are ways to communicate with people. ()
16. Hitting a tennis ball needs a pulling force. ()
17. The bus that covers 60 kilometers in 1 hour has a speed = 60 m/sec. ()
18. In the electric fan, the electrical energy changes into kinetic energy. ()
19. The fennec fox has short ear. ()
20. Potential energy is the energy of moving body. ()
21. Light travels in straight lines. ()
22. We eat food to obtain energy. ()
23. Respiratory system is the system responsible for entering air to the body. ()
24. Speed is the physical quantity measured by kilogram. ()
25. Objects fall down to the Earth due to friction force. ()
26. Wood is a transparent object that allows light to pass through it. ()
27. Some animals can see clearly at night. ()

Science	First Term 2025/2026	Grade 4
28.Exhaled air carries carbon dioxide.		()
29.Thick white fur is an adaptation in bears that live in polar regions.		()
30.As the height of an object from the Earth's surface increases, its potential energy decreases.		()
31.The force that attracts objects down to the Earth is called pushing force.		()
32.Unbalanced forces cause a change in the object position.		()
33.We can measure the covered distance in kilometer unit.		()
34.Dolphins have strong sight sense.		()
35.Airbag absorbs the energy of the passengers during collision.		()
36.Cats have excellent night vision, while humans are not.		()
37.The main difference between pulling and pushing forces is direction of the force.		()
38.Sharp spines are examples of adaptation of some plants to prevent animals from eating them.		()
39.At night, cat's eyes look like small lighted lamps.		()
40.The sandy-colored fur of caracal helps it blend in with snow in polar environment.		()
41.After car collision, the airbags deflate as fast as they inflate.		()
42.Unbalanced forces keep an object in its place without moving.		()
43.The moon is not considered as a light source.		()
44.Being exposed to air rich in dust for a long time harms human respiratory system.		()
45.Some animals prefer hunting during the night than hunting during the day.		()
46.The object that travels down a ramp is affected by the force of gravity.		()
47.Seatbelt is one of the safety equipment in cars.		()
48.Animals communicate with each other by using different senses.		()
49.The desert lizard blend in with large green trees, to hide from its enemies.		()
50.If two objects cover the same distance in same time, so they have the same speed.		()
51.The gravity force causes decreasing the object speed.		()
52.Digestion process starts in the mouth.		()
53.Fishing cat cannot see in the dark.		()

Science	First Term 2025/2026	Grade 4
54.Plants have structural adaptation only.		()
55.Transparent objects include mirrors and lenses.		()
56.By increasing the speed of a moving car, the distance that it moves will increase.		()
57.The chemical energy is the stored energy in the battery.		()
58.Potential energy is the energy of moving body.		()
59.Digestion process begins in stomach with the help of saliva.		()
60.Wood is from transparent materials.		()
61.Animals that are active during the daytime are called nocturnal animals.		()
62.The stopped object can't move until a force acts on it		()
63.Human has excellent night vision that is better than fishing cat.		()
64.Parachutes are used to slow down the speed of Shockwave truck quickly.		()
65.The echoes help dolphins determine the location of preys.		()
66.Friction is a force that opposes motion.		()
67.A normal truck can move faster than a jet airplane.		()
68.Thick white fur is a structural adaptation in fennec foxes.		()
69.Bats use sound waves in communication.		()
70.Nocturnal animals have bigger eyes than humans.		()
71.Energy doesn't transfer from an object to another.		()
72.Bats use their sense of smell to avoid dangers.		()
73.The chemical energy in the battery can be converted into electrical energy		()
74.Stomach is an important organ in the digestive system.		()

★(5) Complete the following sentences using the words below**1. (acacia tree - energy - brain - increases)**

1. The ability to do work and it can change from one form to another is called
2. is an organ in the nervous system.
3. has taproot to search for water.
4. By increasing the speed of an object, its kinetic energy

2. (kinetic - brain - all directions - pulling)

1. There are two forces that effect on a moving object which are pushing and forces
2. The eye sends messages to the through the nerves.
3. As the motion of an object increases, its energy increases.
4. Owl's head turns in to find the food.

3. (decreases - Wood - Gills - Mangrove)

1. is an opaque object.
2. Fish have to breathe.
3. Friction force between the car tires and the road its speed.
4. tree has long and strong roots to resist water waves.

4. (humpback whale - gills - straight - nose)

1. light travels in lines.
2. The is the organ that sends information through nerves to the brain when you smell perfume.
3. sings under water for communication.
4. Fish use to breathe in water.

5.**(Eye - pushing – decreases – Light)**

1. The organ that is responsible for sight
2. If the speed of object decreases, this means that its kinetic energy
3. There are two forces that affect on a moving object which are and pulling forces
4. The form of energy that can be seen is

6.**(Glass - sound - Car seatbelt - Brain)**

1. is a safety equipment that is used to prevent car passengers from moving forward when the car stops suddenly.
2. is considered an example for transparent materials.
3. is an organ in the nervous system.
4. In electric bell, electrical energy changes into energy.

7.**(Eye –mouth - bats - unbalanced - oxygen)**

1. Echolocation is used by some animals as
2. Any object moves from its place when the forces acting on it are
3. is the organ that we can use to receive light.
4. Digestion of food starts in the
5. Fish breathe gas which dissolved in water.

***(6) Give reason :**

1. Bats can't see at night, but they can hunt their preys.

2. There are sharp spines around the leaves of acacia tree.

3. Opaque objects form shadows.

4. The inhaled air is different from exhaled air.

5. Arctic fox has a thick fur coat.

6. Seatbelts in cars are very important

7. Some animals have the ability to make camouflage adaptation.

8. Kapok tree has hand-shaped leaves

9. Wood is considered as an opaque material.

10. Some desert lizards have colorful scales

11. Fennec fox has a tan-colored coat

12. Water lilies have wide floating leaves

13. Barbary fig has sharp spines

14. Dolphins can hear all kinds of sound

15. The brain has an important function in the nervous system

16. Candle is considered as a source of light

17. You can see an object placed behind a glass cup

18. A mirror can reflect light better than a painted surface

19. The fishing cat's eyes seem to glow in the dark

★(7) What happens to ... ?

1. A firefly wants to attract a mate to reproduce.

.....

2. There is a danger near to an ants colony.

.....

3. The amount of food in the ants colony decreases.

.....

4. If panther chameleon is exposed to danger

.....

5. If the acacia leaves are not guarded by sharp spines.

.....

6. If the diaphragm moves downward during inhalation

.....

7. If the diaphragm moves upward during exhalation.

.....

8. If water pollution increases (for humans and fish).

.....

9. If bats lose the ability to hear by using echolocation property.

.....

10. You place a wood sheet between a light source and a wall.

.....

11. The mirror-like membrane in the fishing cat's eyes is not present.

.....

12. Light falls on a transparent body such as a glass window

.....

13. Light falls on a rough surface

.....

14. The Shockwave driver opens the parachutes

.....

15. A car runs out of fuel on a flat road

.....

☀(8) **Matching:**

1.

A	B
1. Diaphragm	a. gravity force.
2. Kinetic energy	b. has a role in respiration
3. Force that attracts bodies toward the Earth	c. airbag.
4. From safety equipment in cars	d. it can be transformed into potential energy.

1-

2-

3-

4-

2.

A	B
1. Human needs energy from	a. is an amphibian.
2. Wood, rocks and metals	b. food.
3. Frog	c. produces light and heat energy.
4. Electric lamp	d. are opaque materials.

1-

2-

3-

4-

3.

A	B
1. Mangrove tree	a. gravity force.
2. Its body is covered with thick fur	b. has role in respiration.
3. The force that attracts bodies towards the Earth	c. has long and strong root.
4. Diaphragm	d. polar bear.

1-

2-

3-

4-

4.

A	B
1. Brain	a. it is a force arises between two contact surfaces.
2. Smell	b. it is a force which pulls objects to downward.
3. Friction	c. the main control center of the body.
4. Gravity	d. the communication way between ants.
	e. it is an automatic response for external stimuli.

1-

2-

3-

4-

☀ (9) Problems:

1. Find the speed of a runner, if you know that he covers 300 meters in 30 seconds.

.....

.....

.....

2. Which of the following materials is a transparent material and which one is an opaque material?

1. Air:

2. Rocks:

3. Wood:

4. Water:

5. Metal:

3. A truck travels a distance of 160 kilometers in 2 hours. Find its speed.

.....

.....

.....

4. Find the speed of a car that moves a distance of 240 Kilometers in 3 hours

.....

.....

.....

5. A deer runs a distance of 200 meters in 5 seconds. Calculate its speed

.....

.....

.....

6. If the two cars move in the same time for 10 seconds, car (A) covers a distance 300 meter and car (B) covers a distance 100 m **Which car is the faster?**

.....

.....

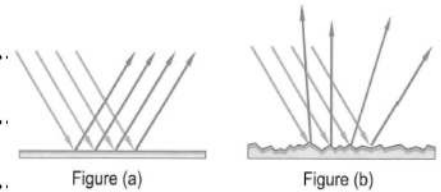


7. Which figure is considered a mirror surface? Why?

.....

.....

.....



8. From the following figure answer :

1. The position has more kinetic energy.
2. The position has more potential energy.



9. Cross out the odd word :

1. Small intestine - Stomach - Trachea - Large intestine. (.....)
2. Nose - Trachea - Stomach - Lungs. (.....)
3. Panther chameleon - Fennec fox - Bull shark -Agama lizard. (.....)
4. Trachea -Alveoli - Stomach - Throat. (.....)
5. Spinal cord - Lungs - Nerves - Brain. (.....)
6. Nose - Throat - Trachea -Anus. (.....)

10. Correct the underline :

1	The friction between the car's <u>windows</u> and the road decreases the speed of the car.	(.....)
2	When you turn on a radio, the electrical energy changes into <u>light</u> energy.	(.....)
3	<u>Potential energy</u> depends on the speed of an object.	(.....)
4	As the mass of a car increases, the damage that occurs during its collision <u>decreases</u> .	(.....)
5	<u>Air</u> enters the mouth of fish and then passes across its gills.	(.....)
6	Groups of ants within a colony have <u>similar</u> roles.	(.....)
7	<u>Stomach</u> is the main control center in the human body.	(.....)
8	The <u>balanced</u> forces cause the object to move.	(.....)
9	<u>Moon</u> is considered as a source of light.	(.....)
10	The system that breaks down food into a simpler form is <u>the respiratory</u> system.	(.....)
11	Gills are unique <u>behavioral adaptation</u> that allow fish to breathe under water.	(.....)

Model Answer

✱ (1) Write the scientific term:

1. Brain	8. Gravitational force	16. Camouflage	25. Respiration
2. Chemical energy	9. Alveoli	17. Nervous system	26. Kinetic energy
3. Reaction time	10. Nervous system	18. Electric energy	27. Transparent
4. Friction force	11. Nurse ant	19. Countershading	28. Panther chameleon
5. Light energy	12. Nerves	20. Fennec fox	29. Moon
6. Pushing force	13. Sensory organs	21. Air bag	30. Brain
7. Pine tree	14. Rough surface	22. Mangrove	31. Scout ants
	15. Diaphragm	23. Tongue	
		24. Energy	

✱(2) Choose the right answer:

1. C	11. C	21. A	31. B	41. C	51. B	61. A	71. B
2. A	12. C	22. B	32. A	42. C	52. C	62. A	72. C
3. B	13. D	23. D	33. A	43. B	53. C	63. A	73. C
4. B	14. B	24. D	34. C	44. C	54. A	64. B	
5. C	15. B	25. C	35. A	45. A	55. D	65. A	
6. D	16. B	26. A	36. B	46. A	56. C	66. B	
7. D	17. D	27. B	37. D	47. B	57. C	67. A	
8. D	18. D	28. A	38. C	48. C	58. A	68. C	
9. C	19. C	29. C	39. B	49. D	59. B	69. B	
10. B	20. D	30. D	40. C	50. B	60. A	70. C	

✱(3) Complete the following:

1. Small intestine	7. Polar bear and penguin	13. Seat belt – airbag	19. Potential
2. Nervous system	8. Light – countershading	14. Force	20. Gravitational
3. Gravitational force	9. Lungs	15. Kinetic	21. Friction
4. Sandy	10. Parachute	16. Sight	22. Increase
5. Wings	11. Kinetic	17. Hearing – sight	23. Structural
6. Kinetic	12. Electric – sound	18. Electric – thermal	24. Sharp
			25. Energy

✱(4) Put (√) or (X) :

1. (√)	14. (X)	27. (√)	40. (X)	53. (X)	66. (√)
2. (X)	15. (√)	28. (√)	41. (√)	54. (X)	67. (X)
3. (√)	16. (X)	29. (√)	42. (X)	55. (X)	68. (X)
4. (X)	17. (X)	30. (X)	43. (√)	56. (√)	69. (√)
5. (X)	18. (√)	31. (X)	44. (√)	57. (√)	70. (√)
6. (X)	19. (X)	32. (√)	45. (√)	58. (X)	71. (X)
7. (√)	20. (X)	33. (√)	46. (√)	59. (X)	72. (X)
8. (√)	21. (√)	34. (X)	47. (√)	60. (X)	73. (√)
9. (X)	22. (√)	35. (√)	48. (√)	61. (X)	74. (√)
10. (X)	23. (√)	36. (√)	49. (X)	62. (√)	
11. (X)	24. (X)	37. (√)	50. (√)	63. (X)	
12. (√)	25. (X)	38. (√)	51. (√)	64. (√)	
13. (√)	26. (X)	39. (√)	52. (√)	65. (√)	

***(5) Complete the following sentences using the words below**

1.	1. Energy 2. Brain 3. acacia tree 4. increases	2.	1. pulling 2. brain 3. kinetic 4. all directions	3.	1. Wood 2. Gills 3. Decreases 4. Mangrove
4.	1. Straight 2. Nose 3. humpback whale 4. gills	5.	1. Eye 2. Decreases 3. Pushing 4. Light	6.	1. Car seatbelt 2. Glass 3. Brain 4. Sound
7.	1. Bats 2. Unbalanced 3. Eye 4. Mouth 5. Oxygen				

***(6) Give reason:**

1. Because they depend on echolocation to find preys at night.
2. To prevent animals from eating its leaves.
3. Because the opaque body doesn't allow light to pass through.
4. Because the inhaled air is rich in oxygen gas, while the exhaled air is rich in carbon dioxide gas.
5. To keep its body warm in extreme cold climate.
6. Because it keeps the driver from moving forward when the car stops suddenly.
7. Because camouflage helps some animals hide from their predators or preys.
8. To allow wind to move more gently through the leaves without cutting them.
9. Because it don't allow light to pass through
10. To hide among the colorful rocks in the desert.
11. To hide in a sandy, rocky environment and to protect it from the hot Sun.
12. To absorb a large amount of sunlight.
13. To prevent animals from eating its fruits and leaves.
14. Because they have sharp senses of hearing, so they can hear all kinds of sound.
15. Because it is the main control center of the body.
16. Because it gives off its own light.
17. Because the glass cup is a transparent material which allows light to pass through.
18. Because the mirror is more smooth than the painted surface.
19. Because it has a mirror-like membrane.

*(7) What happens to ... ?

1. It produces a chemical reaction inside its body to light up and attract a mate.
2. The soldier ants send smelly messages to alert the other ants.
3. The nurse ants send smelly messages to scout ants to alert them to find the food.
4. It puffs up its body with air, opens its mouth wide and changes the color of its scales.
5. Animals can eat these leaves easily.
6. The size of chest increases, the air rich in oxygen gas enters the lungs.
7. The size of chest decreases, the air rich in carbon dioxide gas comes out of the lungs.
8. Humans cannot get clean water to drink and fish cannot get clean water to breathe.
9. They cannot hunt at night.
10. The shadow of the wood sheet is formed on the wall, because light rays cannot pass through it.
11. It doesn't have excellent night vision so cannot hunt at night.
12. Light passes through the glass window.
13. Light rays are reflected in different directions.
14. The Shockwave truck starts to stop gradually.
15. Its speed decreases gradually until it stops.

*(8) Match:

- | | | | |
|------|------|------|------|
| 1. b | 2. d | 3. a | 4. c |
| 2. b | 2. d | 3. a | 4. c |
| 3. c | 2. b | 3. a | 4. d |
| 4. c | 2. d | 3. a | 4. b |

*(9) Problems:

1.	Speed = $\frac{\text{distance}}{\text{time}} = \frac{300}{30} = 10 \text{ m/s}$	2.	1,4 Transparent material 2,3,5 Opaque Material
3.	Speed = $\frac{\text{distance}}{\text{time}} = \frac{160}{2} = 80 \text{ km/h}$	4.	Speed = $\frac{\text{distance}}{\text{time}} = \frac{240}{3} = 60 \text{ km/h}$
5.	Speed = $\frac{\text{distance}}{\text{time}} = \frac{200}{5} = 40 \text{ m/s}$	6.	Speed (A) = $\frac{\text{distance}}{\text{time}} = \frac{300}{10} = 30 \text{ m/s}$ Speed (B) = $\frac{\text{distance}}{\text{time}} = \frac{100}{10} = 10 \text{ m/s}$ So, car (A) is faster.
7.	Fig.(A) because reflected light ray are in one direction.	8.	1. B 2. A
9.	1. Tracea 2. Stomach 3. Bull shark 4. stomach 5. Lungs 6. Anus.		
10.	1. Tires 5. Water 9. Sun	2. Sound 6. Different 10.Digestive	3. Kinetic energy 7. Brain 11.Structural 4. Increase 8. Unbalanced

كيفية طباعة صفحات معينة من ملف معين مثلا ازاي نطبع الصفحات من صفحة 4 الى صفحة 9

